Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOLUME VIII.] NEW-YORK, JUNE 4, 1853. [NUMBER 38.

THE
Scientific American,
PUBLISHED WEEKLY
At 128 Fulton street, N. Y., (Sun Buildings),
BY MUNN & COMPANY.

Hotchkiss & Co., Boston.
Dexter & Bro., New York City.
Stokes & Bro., Philadelphia.
LeCount & Strong, San Francisco, Cal
Cooke, Kinney & Co. ditto.
B. Dawson, Montreal, C. E.
M. Boullemet, Mobile, Ala.
E. W. Wiley, New Orleans, La.
E. G. Fuller, Halifax, N. S.
M. M. Gardissal & Co., Paris.

Responsible Agents may also be found in all the principal cities and towns in the United States.

Terms—$2 a-year—$1 in advance and the remainder in 6 months.

USEFUL RECEIPTS.

Hair Waters.

A very fashionable liquid, now in such prevalent use for removing the dandruff from the hair, is made by mixing together bay rum 4 quarts; water 1 pint; glycerin 2 ozs.; tinct. cantharides ½ oz.; carb. ammonia ½ oz.; borax 1 oz.

Dissolve the two last in the water and add the solution to the other materials mixed together, and then shake up well.

The hair is moistened with this liquid, and the slight lather occasioned by rubbing with the hands must be washed out with water.

By doubling the quantity of borax, the lather is more soapy, but the addition is injurious to the hair.

By omiting the borax, a wash is obtained nearly identical with the far famed "Balm of Columbia," and similar cosmetics for the hair.

Hair Tonic.

Black tea 2 ozs.; water 1 gallon; bay rum 1 quart; glycerin 3 ozs.; tinct. cantharides, 1 oz.

Exhaust the tea with the water heated to boiling, filter, and stir in the remaining ingredients previously mixed.—[Ex.

[The cantharides should never be used; they injure the hair far more than the borax; they were first employed by the French perfumers. Some honey added to either of these hair waters greatly improves their quality for thickening the growth of the hair.

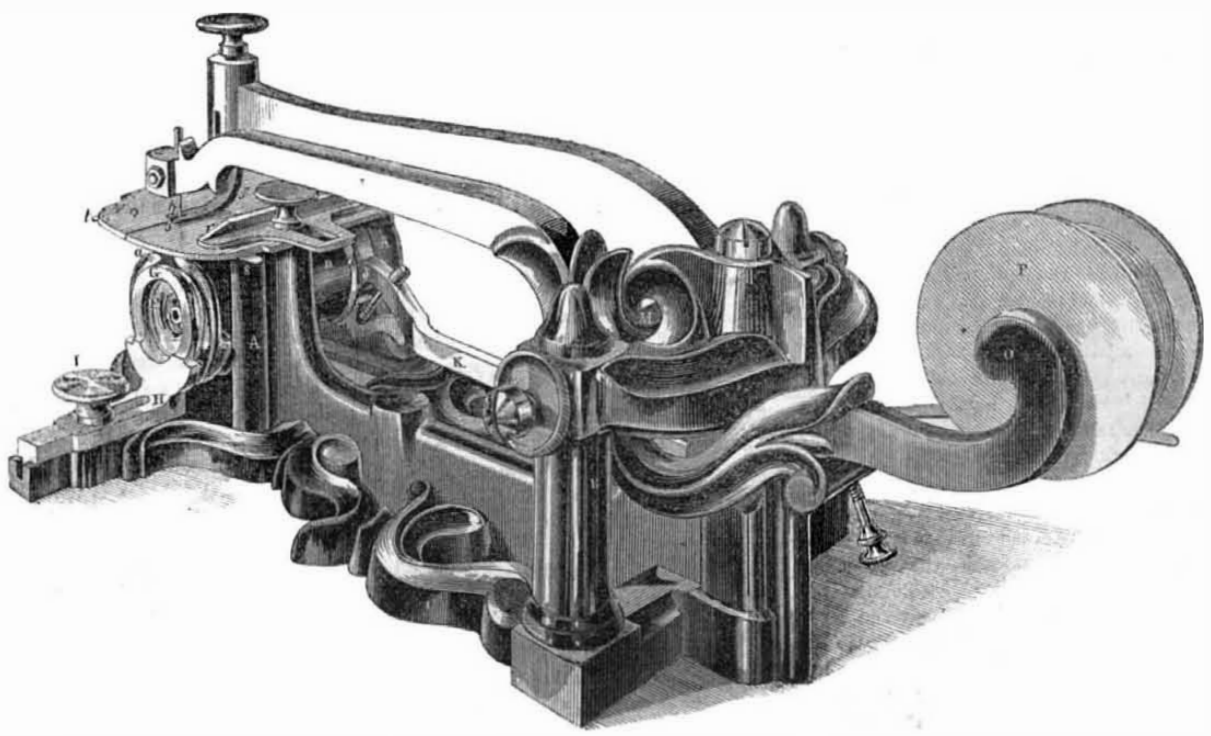
Cherries Without Stones.

Cherries without stones have been produced in France, it is said, by the following method:—In the spring, before the circulation of the sap, a young seedling cherry tree is split from the upper extremity down to the fork of its roots; then, by means of a piece of wood in the form of a spatula, the pith is carefully removed from the tree, in such a manner as to avoid any excoriations or other injury; a knife is used only for commencing the split. Afterwards the two sections are brought together, and tied with woolen, care being taken to close hermetrically with clay the whole length of the cleft. The sap soon re-unites the separated portions of the tree, and, two years afterwards, cherries are produced of the usual appearance, but, instead of stones, there will only be small soft pellicles.

A Musical Peddling Dentist.

One M. Duchesne has been driving about Paris in a gaudy wagon and with a band of music, taking out teeth. He stops in some frequented place, collects a crowd by means of the cymbal, and then invites the afflicted to apply at once for extraction and relief. A notice on the side of the wagon reads thus:—"5,000 francs if I miss a tooth." Each applicant mounts on the seat with M. Duchesne, who demands the coin before proceeding.—The head is then inclined backwards, the mouth opened, the tweezers inserted, and the tooth snatched from its gory bed. It is held up in the air an instant for the admiration of the multitude, and at each extraction the drum gives a bang of triumph.

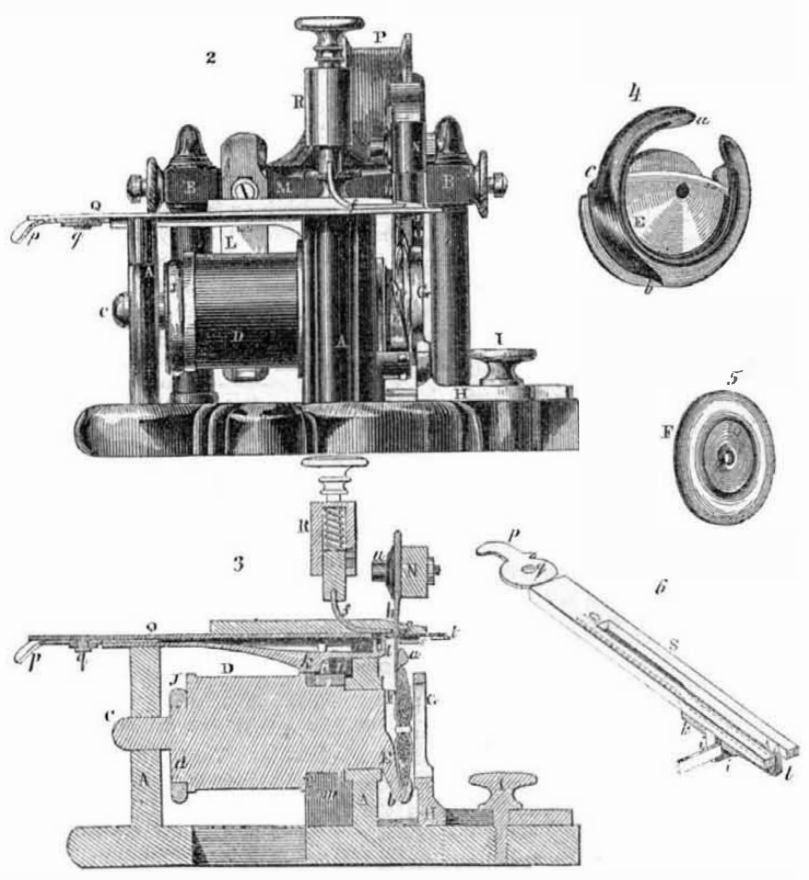
WILSON'S IMPROVED PATENT SEWING MACHINE.---Figure 1.



The annexed engravings are views of the celebrated Sewing Machine invented by A. B. Wilson, of the firm of Wheeler, Wilson, & Co., and for which a patent was granted on the 15th of last June (1852). Mr. Wilson had invented and received patents for previous sewing machines, one of which has been described in our columns, but this one appears to be the very perfection of sewing machines.

Figure 1 is a perspective view; figure 2 is an end elevation of the same; figure 3 is a transverse vertical section of the same; figure 4 is a view in perspective of the rotating hook which opens the loops; figure 5 is a view in perspective of the cymbal spool which carries the thread; figure 6 is a perspective view of the feed bar and appendages attached from the machine. The same letters refer to like parts.

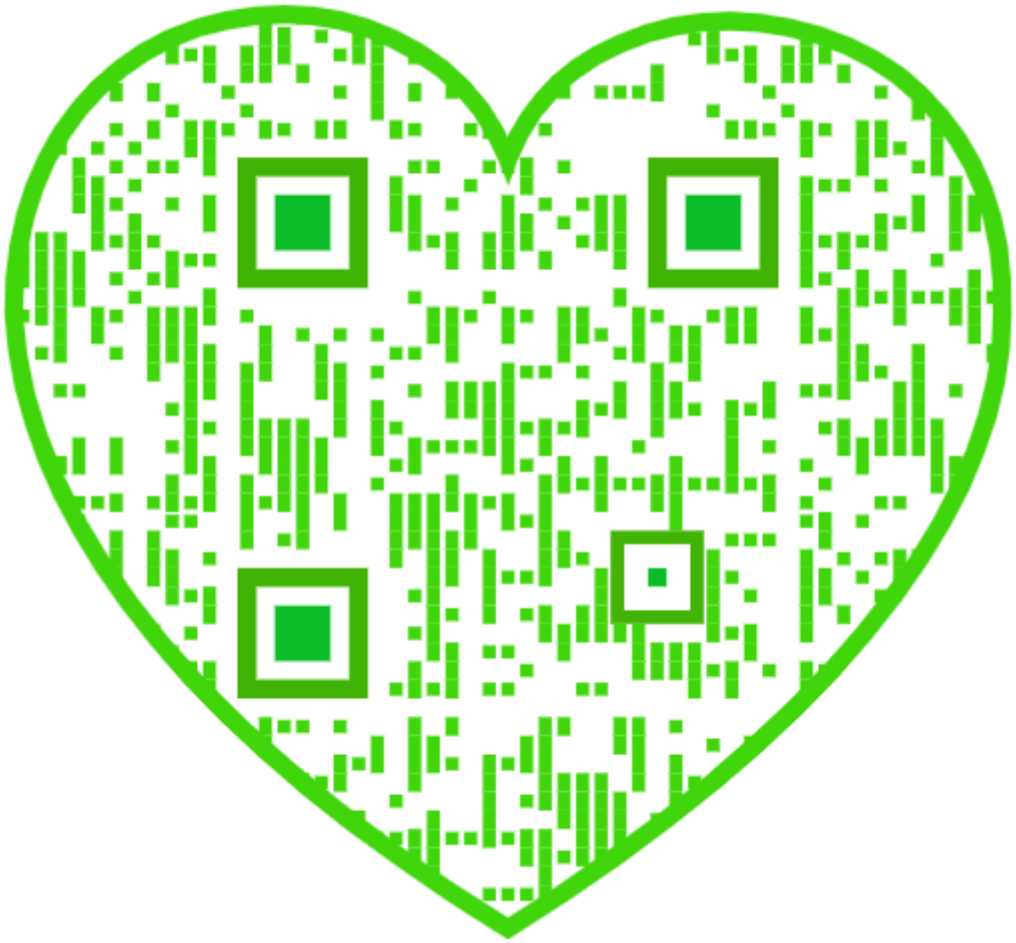
The machine is a peculiar one and works with two threads, and forms the firm lock stitch, but it has no shuttle and has but one needle. The working parts are secured to a neat small frame, A B, and when in operation



is placed on a small table before the operator and is driven by a stirrup band and pulley, like a foot lathe, or it can be driven by steam or water power with band and pulley; C is a mandrel, and D a pulley on it to receive motion by a band as described. At the front, end of the mandrel, C, there is a rotating cam plate hook, E, (best seen in figure 4) on it; this rotating cam hook is of a peculiar form; it is concave on its face, and has portions of two threads of a screw formed on its periphery, a portion of the periphery is also cut away to form the hook, *a*, which opens the loop in the needle thread. One part of the front or outer thread of the screw is chamfered off at *b*, to the back or inner thread, and the notch, *c*, between the portions of the screw threads is made to extend back from the hook, *a*, about one-third of the circumference. Within the concavity in the face of the hook, plate, E, there is a hollow quoit-formed bobbin, F, which carries a thread to be passed through the loop formed by the needle thread when it has passed through the cloth, so as to form the lock or true binding stitch. This peculiar bobbin is held by a ring, G, attached to a rod, H, which is adjusted by a screw, I, secured in the frame; this ring keeps the bobbin in its place, but allows it to turn freely. One part, *d*, of the mandrel is turned eccentrically and is encircled by a ring, J, to which a rod, K, is attached, which connects to an arm, L, and is secured to the arbor, M, which is fitted in bearings in the standards, B B, of the frame, and forms the fulcrum of a two-armed lever, one of whose arms, N, is the needle arm, and to the other, O, is secured the spindle, upon which is hung the spool or bobbin, P, which carries the thread for supplying the needle and forming the loops. By the revolution of the mandrel, C, the eccentric, *d*, is caused to give a vibratory movement to the lever, N O.

The cloth or material to be sewn is laid upon a plate, Q, which is secured to the top of the standards, A A, and forms a small table. It is held down by a small pressing plate, *f*, which is attached to the end of an arm, R, secured to the back of the standards, B B, and extending over the top of the needle to pass through, and an opening corresponding to the notch, *g*, is cut through the plate, Q, for the same purpose; N is the vibrating arm which carries and works the needle, *h*; the hook, *a*, rotates and passes as close as possible in front of the needle; the movements of the hook and needle are so regulated that the hook passes the needle just as the latter is commencing its ascent. The cloth is fed forward to the needle by means of a peculiar feed bar, S (fig. 6). This bar is straight and flat with a slot nearly its whole length, and with two ears, *i i*, on its under side; under the slot is secured a spring bar, *k*, which has a pointed tooth, *l*, at the end. The bar, S, slides in mortices in the standards, A, below the plate, Q. The point of tooth, *l*, is below the small slot in plate, Q, and passes through it, catching the cloth and moving it forward a short distance for a stitch, then dropping down to take another stitch. This

© 1853 SCIENTIFIC AMERICIAN, INC



action it performs by a cam, T, (fig. 3) on the mandrel, C, which has a projection on it, that presses on the spring under bar, *k*, and forces up the tooth, *l*, while at the same time its front part acts on the back of ears, *i i*, and moves the feed bar forward towards the plane of the needle's motion. When the cam, T, ceases to act, the tooth, *l*, that catches and carries the cloth, drops down and the feed bar is pushed back for a new stitch, by the pressure of the spring, *n*, which is secured to one of the standards on the ears, *i i*. The length of stitch is regulated by an eccentric stop, *p*, which is pivoted on a pin, *q*, to the under side of the plate, Q; the feed bar is forced against the stop by spring, *n*.

The material to be sewed is placed on the top of plate, Q, under the pressing plate, *f*, and close up to the upturned part, *r*, which serves as a gauge to regulate the distance of the seam from the edge of the cloth. The thread from spool, P, is conducted through hole, *u*, near the end of the needle arm, and then through the eye of the needle near its point. The thread from the hollow plate bobbin, F, is passed through a slit between a small spring, *s*, and the edge of plate, Q, to the opening through which the needle passes; in this opening it plays freely. Its end is passed under a spring, *t*, which holds it, and the end of the thread from the needle is held by the attendant, and all is then ready to commence work.

When the mandrel is rotated, the descent of the needle arm forces the needle through the cloth, which carries the thread with it—the thread lying close to the needle behind and in front of it. When the needle commences to return or rise, the cloth offers a slight resistance to the return thread, which forms an opening; the rotating hook, *a*, comes round and catches it, carries it forward, and forms a loop. As the rotation of the hook continues it enlarges the loop, and that part of it which is on the front side of the hook, is drawn between the bobbin and the concave face of E, while that part of the loop behind the hook passes into the notch, *c*. The loop being extended by the rotation of the hook, the plate bobbin, F, in the concave of E, passes through it and on the next descent of the needle the loop is slipped over the chamfered part, *b*, of E, and drawn over the front of bobbin, F, between it and ring G, and thus it will be understood that as soon as one side of the loop passes on one side of the bobbin, and the other on the opposite side, the bobbin passes through it, and on its being drawn tight it locks the thread of the needle. Every second stitch is commenced before the previous one is completed, the extension of the loop for the second stitch drawing the first tight, and thus every stitch must be alike—not one slack and one tight as in some machines. The form of the rotating hook causes it to perform three beautiful and ingenious operations, namely: forming and throwing off a loop, and drawing the preceding one tight at the same time. While the needle is operated, the cloth is regularly fed forward by the feed bar described. There is a brake spring, applied to the spool, P, to give the needle thread its proper tension; and a piece of leather, applied to ring, G, produces the proper tension on the threads of the loops. The needle arm has a vibratory motion, and the length of needle stroke can be increased or diminished by a screw.

This machine is exceedingly neat and portable; it performs the finest quality of stitching, such as collars and shirt bosoms. One girl can stitch with one machine, 35 dozen of shirt collars in one day. There are 300 of these machines now in operation in various parts of the country, and the work which they perform cannot be surpassed. They can sew straight and curved seams; the stitches do not rip out, and from 1,000 to 1,500 stitches can be made in one minute by a good operator. One machine all complete occupies no more room than a small work table, and it is as ornamental as useful. The time must soon come when every private family that has much sewing to do, will have one of these neat and perfect machines; indeed, many private families have them now. Messrs. Wheeler, Wilson, & Co., have their office at No. 265 Broadway, this city, where these machines can always be seen in operation, and to see them is to admire their ingenuity of construction and excellence of action. The price of one all complete is $125; every machine is made under the eye of the inventor at the company's machine shop, Watertown, Conn., so that every one is warranted. As there has been much dispute about the originality and identity of sewing machines as related to Mr. Howe's original patent, no person who buys one of these machines is clogged with an impending prospective law suit, as there is an arrangement and perfect agreement between Mr. Howe and Messrs. Wheeler, Wilson, & Co.; so every customer will be perfectly protected. These machines are adapted to sew fine and coarse work; mens clothes or the finest collar stitching.

More information may be obtained by letter addressed to, or by calling at the office of the company.

Atmospheric Telegraph.

Suppose a line of two feet tube laid from Boston to New York, it would contain about 4,000,000 cubic feet of air. Suppose twenty pumps of ten feet diameter, and ten foot stroke are located at the Boston end, connected with the cylinder; these twenty pumps contain about 15,714 1-7 cubic feet. Suppose the pumps are worked twenty-strokes in a minute we have removed 314,285 2-7 cubic feet of air. Suppose the plunger was let in at New York at the commencement of operating the pumps, and the pumps continued to run, for fifteen minutes in which same rate 4,714,279 2-7 feet of air would be removed and the cylinder only containing 4,000,000, the plunger must reach Boston about as soon as this work could be performed so far as we can see, and the same result the other way. If the same number of pumps are worked at the same rate and for the same time, at New York allowing the plunger to be put in at Boston, when the pumps are set to work, and all the power used would be applied directly to moving the plunger and load; the air being removed from before the load no resistance could be had from it, and the power applied to the pumps is directly applied to drawing the plunger. And if the number are not sufficient to perform the work as fast as is necessary, more pumps may be added or of a larger calibre, this appears to be good theory, and so far as it has been tried, is good practice.

Electro Magnetic Steam Boiler Alarm.

We have received a communication from Wm. H. Lindsay, of this city, stating that the Steam Boiler Telegraph Alarm, which we saw in operation at the engineering works of Messrs. Pease & Murphy, of this city, and which we noticed in our columns, is described in a patent granted to him in 1849.

This patent Electro Magnetic Boiler Alarm, which we spoke of, is described in O. Byrne's recent work as the invention of Arthur Dunn, now a resident of England, and in whose name the recent patent for Ericsson's engine was taken out in London. He was formerly, we believe, a resident in this city, and has both an English and an American patent for the Electro-Magnetic Boiler Alarm. Mr. Lindsay's papers were filed in Washington, describing the Alarm on the 16th March, 1848; Arthur Dunn's were filed in England a month afterwards; the coincidence, somehow, is remarkable.

The New Light and New Motive Power.

We see, by nearly all of our English cotemporaries devoted to science and inventions, that they speak in high terms of the discovery of a Dr. Watson, whereby the electric light is rendered perfectly successful and economical, and by which, also, electro-magnetism will be economically applied to drive machinery and supersede steam. The whole of the economy of the new discovery of Dr. Watson lies in making useful products out of the materials employed to generate the electricity. At the present moment, for example, the sulphate of zinc is the product of employing zinc and sulphuric acid in the battery. Dr. Watson is going to employ lead as the metal, and the bichromate of potash as a fluid in the battery, which will produce the chromate of lead, a beautiful yellow pigment employed by painters. A company named the "Electric Power and Color Company," has been formed in London with a large capital, and a great establishment is to be erected in a short time to carry out the project.

We have no hope of the electric light or electro-motive power being so economical, for light on the one hand, or motive power on the other, as to supersede present modes of lighting, or the steam engine. The Electric Light is stated to be very splendid, not requiring air for burning, and that it will burn under water. The qualities which the light are said to possess, are no greater than those which our English friends spoke so highly of, as belonging to Staite's Electric Light, a few years ago, and which utterly failed, because of its great expense. We know that the useful materials—the chromate of lead—said to be produced by Dr. Watson's process, cannot make his plan so economical as to compete with gas light, or generate a power to compete with steam.

The Aztec Children.

These diminutive little specimens of an antique race (supposed to be) are on exhibition in this city, at the rooms of the Curioso, 629 Broadway. These curious specimens of the human race, described on page 133, Vol. 7 of the Scientific American, and the opinion of Horace Greeley of them may be found on page 184, same volume. Whether the Aztec children, which are on exhibition here, belong to a race nearly extinct, or are merely Indian dwarfs from Central America, is immaterial,—they are great curiosities and well worth seeing.

Changes in the Patent Office.

Saml. S. Shugart, formerly Assistant Clerk in the Patent Office, has been appointed Chief Clerk, in place of R. C. Weightman, removed Titian R. Peale, formerly Assistant Examiner, has been appointed a Chief Examiner. Mr. Peale has been a long time in the Patent Office, and is eminently qualified to perform the responsible duties of a Chief Examiner.

Apple Trees Killed with Potash.

Medicines in excess become poisonous. The "New England Farmer" mentions the case of an orchard of one hundred and sixty thrifty Baldwins that were washed with a solution of a pound of potash in a gallon of water. The owner found, in two days, that he had killed the whole of his beautiful and valuable trees. Soapsuds or ashes in water are strong enough. Guano is an excellent thing for trees, and salt is sometimes good; but it is one of the easiest things in the world to kill trees with them in excess.

Fall of Catfish.

The "Norfolk Argus" states that a curious phenomenon attended the hail storm in that city on Tuesday night. Quantities of catfish, some measuring a foot in length, fell in different sections of the city, and some of the fields were literally strewed with them.—Hundreds were picked up in the morning.—This, says the "Argus," is no piscatorial fabrication, but a fact which is attested by hundreds of citizens.

A new Mode of Ship Ventilation.

An iron ship named the "Evangeline," recently launched at Liverpool, has iron masts which are hollow cylinders, and which have trap doors at the lower end to open or shut at pleasure, for the ventilation of the vessel. It has been found that excellent ventilation is maintained by these masts even when the ship is stationary. This vessel has left Liverpool for New Orleans with a cargo of goods and passengers.

Comparative Health of Cities.

The report of the Board of Health of this city—New York—for the year 1852, shows an aggregate of 21,558 deaths, while the Philadelphia Board of Health, for the same year, gives, the total number of deaths in that city at 10,245. Thus, New York, with a population of 515,507, had one death to every 24 persons, and Philadelphia, with 409,000 inhabitants, had one death to every 40 persons. New York, however, has a large foreign population, among whom poverty and want breed sickness and death. The deaths, in New York, during the year 1852, of persons born in the United States amounted to 14,871, or one native in every 35 of the population. The greatest number of deaths was among the foreign Irish.

Improvement in Mills for Sawing.

An improvement in mills for sawing logs or lumber of any kind, has been invented by Henry S. Perrin, of Oxfordville, N. H., the arrangement of Mr. S. is substantially the following:—A semicircular or curved saw is hung in a rocking saw gate, rocking or turning on centres on the outside, a little below the centre of the saw sash. The pitman may be forked and take hold of arms projecting backwards from the sash, and hinged upon it, a little below the centres upon which it turns, or it may be attached in any other suitable manner, extending from it horizontally or in any other direction as may be desired. The pitman is hung in a bearing near its centre, and the lower portion slotted for the reception of a sliding box, within which the wrist of the driving crank turns. The log slides through the saw frame in the usual manner, It will be perceived that a great amount of friction is avoided by the above arrangement. The saw may be kept steady by a set of rollers, between which it turns in its cutting stroke, which will also prevent the saw from "running" or turning from its true course.

Improvement in Bedsteads.

A new method of attaching the parts of the common bedstead together, has been invented by Westley E. Merrill and Freeman Tupper, of Nashua, N. H. This method is simple as well as permanent, and recommends itself, also, for its cheapness. The rails are fastened to the posts by means of cast-iron clamps screwed upon each, which so interlock each other that a simple metal key, pressed down between the clamps, confine the rails and posts effectually together; the castings cost but a trifle, and they are very readily secured to the posts of the bedstead, ready for use. The manner in which the head and foot board are kept in their place is still more simple, nothing being required for each connection of the board and post but two castings or pieces of flat metal with a dovetailed groove cut upon the side of one, and a key upon the other corresponding to this groove. The parts being secured in their position by screws, all that is necessary to put them together, is to slide the board down to its required place, and the whole will then be firmly united. The canvas which covers the springs is also buttoned upon the side rails in a very convenient manner. The inventors have taken measures to secure a patent.

Improvements in Gun Locks.

An improved mode of constructing gun locks has been invented by P. F. Charpie, of Mount Vernon, Ohio, who has taken measures to secure a patent. The arrangement is a very simple and effective one, with hardly a possibility of failure, when in operation. The improvement consists in a new method of operating the hammer by means of the spring and trigger. The force of the spring is communicated to the hammer by a double or jointed stirrup attached to a pin passing through the hammer a short distance from the centre, upon which it turns as a fulcrum. The end of this lever, opposite the fulcrum, catches into notches formed on a small stationary block upon the bed plate, and in this manner secures the hammer at half cock or cock, as desired, when the hammer is brought to either of those positions.

Sash Fastener.

Benj. H. Bradley, of Cheshire, Conn., has invented an improvement on friction sash fasteners, for which he has taken measures to secore a patent. Mr. B. employs a sliding plunger, with a friction roller in the head surrounded by a spiral spring and placed within a barrel, the whole being inserted in the sash of the window, the rollers (one being used upon each side) press against the frame and secure the window by friction at any desired position: this arrangement shows no appearance of a fastener on either side of the window, and is a very cheap fixture.

Some French Savans have called a meeting of philologists, to be held in Paris next month, to devise means for adopting a universal language.

© 1853 SCIENTIFIC AMERICIAN, INC

The Caloric Ship—Letter from Capt. Ericsson.

MESSRS. EDITORS.—I cheerfully comply with your suggestion in regard to the Caloric Ship. I have much pleasure in assuring you that nothing whatever has occurred in working the machinery indicating the difficulties that can prevent the successful realization of this important enterprize. The only difficulty we have met with is that of the cylinder bottoms or heaters having proved too elastic and yielding to remain air-tight, or to admit of full pressure being carried. On the return of the ship from the South, two months ago it was deemed advisable to replace these heaters, which are made of boiler plate, by others of cast-iron, as that material admits of being made of any required thickness.—Only one foundry having been found willing to undertake the casting of these, requiring from six to eight months for their completion, we have been compelled to adopt a different plan; one, however, that will insure increased power and speed. As the modification which this involves calls for a work of great magnitude, our friends will have to exercise, some little patience. Allow me, in connection with this remark, to remind you that it is only thirteen months since the keel of the Caloric Ship was laid, and that steamships of her class usually require eighteen months for completion. Mr. Collins, in building his ships, found nearly twice that time requisite.

As the modification of a patented machine is not properly a subject for public discussion until completed, you will, I am sure, see the propriety of my not furnishing a statement of what is now being done to the machinery of the caloric ship; as soon as the work is completed, the owners of the ship will be most happy again to invite the liberal press of New York to see the result of the second step in the development of the great motor.

I am, Sir, very respectfully,
Your obedient servant,
New York, May 20, 1853. J. ERICSSON.

[This letter was addressed to the Commercial Advertiser. Our readers will see that Capt. Ericsson, confirms all we have predicted respecting the caloric engine. On the 11th of last January the Ericsson made her second trip down the Bay with the corps editorial aboard. On that occasion, as we have stated before, in answer to a question put by Alex. Jones, Esq., of this city, Mr. Ericsson made a contrary statement in respect to his heater *bottoms*, to that which he makes in the foregoing letter. It was understood by all present that his heater bottoms were to last four or five years. In the "N. Y. Tribune" of the 12th January, it says, "There is no danger either of fusion, cracking, or oxidizing, of the *cylinder bottoms*, all of which have been predicted by the sceptical—a cylinder bottom will last five years." So much for what the "Tribune" said.

Victor Beaumont, a French engineer, published an article in the "Herald" at the same time, in which he used the following language:—"The bottom of the cylinders (heaters) is a convex surface, it is supposed they will be able to endure *longer than four years*, the average duration of boilers in the United States."

On that celebrated occasion, the 11th of January, when the editorial corps in this city (as has been proven since, and as will be still further demonstrated yet) did no honor to the profession on board the Ericsson, the Committee consisting of Richard Grant White, Prof. Mapes, and Freeman Hunt, appointed to draft resolutions, penned the following one (the 4th of a series) which was adopted. "Resolved. That the pecular adaptability to sea vessels of the new motor presented to the world by Capt. Ericsson, *is now fully established* and it is likely *to prove superior to steam* for such purposes."

By Capt. Ericsson's letter above, we now learn that his new motor, so far, has failed to operate successfully, for if it did so operate, foolish, indeed, is he and those who have invested their money in it to go into such a vast and unnecessary expense, as "the *modification* which is now to be made in his engine, and which he calls "a work of great magnitude."

The caloric engine, Capt. E. tells us, is to be modified, and this *modification is not a proper subject for discussion.*"

These words are pregnant with meaning; the inference to be drawn from them is that the trip of the Ericsson to Washington was "the beginning of the end." At some future time, we will have to present our readers with a full review of the whole case; but we must bide our time.

Southern Granite and Slate.

A correspondent of the "Memphis Eagle" says:—

"In the State of Arkansas, in the immediate vicinity of Little Rock, is as fine and good granite as is to be found anywhere in the world. I was there last fall, and saw it myself; and can say that it is not only as fine, but, if any difference, finer than that I recently saw in New Orleans, to which I have referred to above. I was credibly informed, while at Little Rock, that, a few miles from that city, is what is called the "Granite Mountain"—a mountain of granite about thirteen miles long, two and three miles broad, and a quarter of a mile high. Here, then, is an almost inexhaustible quantity of this material; nor is it only here, but for miles the country is full of it. Why, then, send away to New England for it? Why not have it gotten here, almost, as you might say, at New Orleans itself, and take it right down to the city?"

The reason why these granite quarries have continued so long undisturbed, as given by this correspondent, is the difficulty of getting such a heavy material to market. This difficulty will soon, however, be entirely obviated, by the building of the Great Central Railroad from Memphis to Little Rock, which is expected to be completed within a very few years. Then the granite can be suitably prepared at the mountain, put on the cars, sent to Memphis, and thence shipped all over the western and southern country, from the Falls of St. Anthony to New Orleans.

"The slate quarries of Arkansas also bid fair to be exceedingly valuable. We are now mostly supplied with slate from Wales and Pennsylvania. The Arkansas slate is found in veins about a mile wide, which cross the Arkansas river at Little Rock, and extend southwestwardly as far as Ouachita river, and some distance in the opposite direction. Near Little Rock it is most accessible.—There the vein is seventy-five feet thick above the river bed, which, multiplied by the area of the vein belonging to a company, one hundred thousand feet, gives seven million five hundred thousand cubic feet of slate. Should the quarry go to a depth of three hundred feet, the total yield would be thirty million cubic feet. From a cubic foot of rock it is estimated that, allowing one third for waste, a workman can split fifty good smooth slates, of sufficient thickness for roofing. This gives a full aggregate of fifteen hundred million slates, or fifteeen million squares of one hundred feet of regular size for roofing.

A Cincinnati company have obtained a charter, which runs for fifty years, and have purchased a large tract of land, with a view of supplying the Cincinnati market with slate. They will undoubtedly be successful, as will other companies that will assuredly spring up. As soon as the Central Railroad is completed, Arkansas will take a start that will speedily make her one of the most prosperous and desirable states in the Union."

(For the Scientific American.)

English Grammar.

"The republic of letters" seems to be a favorite phrase with us American Anglo-Saxons, but it seems to me that a portion of our literature is as worthy of the appellation "Anarchy of Letters," or "Babelism of Letters," as the "Republic of Letters." It is agreed among all the learned that the English language is one of the most copious and perspicuous languages on earth; but we have no code of laws enacted by a Congress of the learned for its government. Our country, however, is flooded with grammars, each author professing to have discovered the true panacea for all difficulties. We have not time to glance hastily at a new author before another appears. This is a sore evil in our schools. Parents, already too highly taxed for bundles of "gibberish," receive a galling note from their children's teacher to procure copies of the new grammar, before their children have become familiar with the old one. Now is such a state of things to continue? Are we to remain in such a state of anarchy, without a code of inflexible laws to govern our language? I admit that much improvement has been made, but of all the authors known to me, I would express a decided preference to have one good grammar only. B. W.W.

The Dahlia.

We do not know of one single gem in Flora's diadem, more exquisitely beautiful than the dahlia; and there is nothing easier of culture and propagation, and nothing that continues longer in bloom. The wonder is that it is not more generally cultivated at the south. For dahlias this season commenced blooming in April, and they have been one dense mass of bloom ever since, with a prospect of continuing so until frost. The forms range from the exquisite double cup to the open petal.—Some are singularly unique and beautiful; for instance, a deep crimson with a single white petal, scarlet and white, yellow and red, variegated, and all the thousand fancy forms and colors which Flora in her wildest, gayest freaks could possibly assume. The dahlia thrives and blooms best in a sandy soil—too rich a soil making it too bushy. Where the soil is naturally rich, a shovelful of sand put around the tubers will be of great service; and when it is naturally poor a shovelfull of well-rotted manure will be the same. But the dahlia loves water, and, when the season is not reasonably wet, it must have artificial watering. We commend its culture to all lovers of the beautiful.

Many who cultivate dahlias are not aware of the ease with which the plant may be obtained from the seed. This may be gathered in sufficient quantities at the season of the year from almost any plant which has blossomed freely during the summer. If sown in the spring in a rich warm soil, with a southern exposure, they will, without any extra care, produce plants which will blossom abundantly during the same season. The practice of keeping the tubers through the winter is quite unnecessary, except for the preservation of choice varieties. Those obtained from the seed will commence blossoming somewhat later in the season than the others, but early enough to mature seed, while the varieties which can be thus secured are almost endless. —[Southern Cultivator.

The Secret of New York Enterprize.

The "Philadelphia Gazette," in quite a lengthy article, attributes the success of New York—its great and rapid increase in wealth, inhabitants, and general prosperity, to energy and enterprize. It says:—

"It is, indeed, New York enterprize, New York energy, New York effort," that has done almost everything for that growing city.—The public spirit and far seeing genius of Clinton gave the original impulse to that system of improvement and progress which has already resulted in such marvellous developments, and which has been carried out since with a vigor and zeal entirely worthy of him. When he projected the construction of the noble canal, from the completion of which New York dates the beginning of her greatness, the dull, slow, and comparatively unenlightened commercial understanding of the period regarded this scheme as impracticable, and laughed at him as a wild enthusiast.—Against ridicule, opposition, and difficulties seemingly insuperable, he persevered in urging the project, until, after the lapse of seven years, and an expenditure of over seven millions of dollars, the work was completed, and the first canal boat from the Northwestern Lakes landed at New York. The impetus given to the trade of the State and its metropolis, by that magnificent improvement, soon rendered New York the central point, on this continent, of internal and foreign commerce, and infused into its citzens, as a community, an energetic and enterprizing temper, which appears to be perpetually increasing in activity, and for which no undertaking seems too gigantic.

It is that temper—bold, comprehensive, and restless—which has built the three grand railways uniting the tides of the East and Hudson Rivers with the waters of Lake Erie, and is now multiplying their extensions through all the vast west. It is that temper, also, which is fast connecting New York by Ocean Steam lines with every considerable port in the world—which is erecting her superb hotels and ware-rooms, opening new and splendid places of popular amusement, spreading the fame of her magnificence far and wide, at home and abroad, on the wings of the press, and in the persons of her people, and supplying, in short, almost the whole of the vast motive power that is operating with such resistless effect the mighty and complicated machinery of her industry and commerce.—Where she once had one, she now owns a hundred De Witt Clintons, who are bending the united force of their large minds and large means to her aggrandizement. The names of her Grinnells, Laws, Vanderbilts, Aspinwalls and Collinses, are known in every quarter of the commercial world; and their spirit, pervading and informing the great mass of the population amid which they live and move, is combining and directing the energies of the whole in the accomplishment of whatever promises to promote and maintain the metropolitan supremacy of their proud city.

A Monster Steam Hammer.

We learn by the "Glasgow Herald," that a monster steam hammer, the largest in the world, we believe, has recently been erected in an extensive machine works in that city by a Mr. Condie. The frame of this is composed of two cylindrical cast-iron columns of 19 feet long, tapering from 3 feet 5 inches in diameter at the floor line, to 2 feet 3 at the capital, and weighing each 9 tons 13 cwt.—These columns stand apart 23 feet, measuring from centre to centre. On the tops of the columns rests a cast-iron beam, measuring 2 feet 6 inches at its deepest part in the centre, and weighing 6 tons ¼ cwt.; a similar beam, but weighing 7 tons 1 cwt., runs across from column to column at a height of 6 feet 10 inches from the floor line. Between these two beams the guides in which the hammer slides are placed, each of which weighs 2 tons 5½ cwt. The guides and the upper and lower beams and the columns are held firmly together by tie rods that run diagonally from the tops of the columns to the bottom of the slides. The hammer is upwards of 6 tons, exclusive of the face, which is cast separate, and wedged into a dovetailed slot, left for the purpose in the bottom. All parts of this great tool weigh in gross somewhere about 50 tons. The foundation work of such an enormous hammer, with its percussive shock every three or four seconds, was a matter requiring no ordinary forethought.—The whole space under the machine, about 30 feet square, was first, at a great depth below the surface, closely filled with piles 20 feet long and 10 inches in thickness. On the top of these piles there are 400 tons of stones, each three feet in thickness dressed all over, and above this mass lies the anvil block weighing no less than fifty-three tons. When this hammer was set up it started with the regularity and smoothness of a piece of the finest watch-work. But when the huge mass of iron composing the hammer came down with its full weight, with a fall of six feet, then the almost volcanic force of the mighty weapon was understood. The shock caused the earth to vibrate for a considerable distance.

The stone-masons in Glasgow, Scotland acting on the advice of Dr. Allison, of Edinburgh, have commenced wearing mustachios as a preservative against the injury done to the system by fine particles of sand, while they are engaged dressing stones. Custom may be against such natural preventatives; but if it is found that they are at all beneficial, we deem it the duty of some of our medical readers to recommend their adoption by millers, bakers, and others similarly exposed.

It any curious person be desirous to see what neither he nor the world ever saw before, let him drop in upon Mr. John Taylor, at the end of Tyne Bridge, Eng., who has got a whole mile, more or less, of tube, without a single joint, made from gutta percha. Such a pipe was never, in any former age, produced of any material whatever.—[Exchange.

© 1853 SCIENTIFIC AMERICIAN, INC

NEW INVENTIONS.

Railroad Signals.

Moses S. Beach, of New York City, has invented an improvement in Railroad Signals, for which he has taken measures to secure a patent. The great number of accidents occasioned by the want of proper signals, has induced inventors to devise a variety of means for preventing them. This is one of the most efficient methods for accomplishing this purpose which has come under our observation. The certainty with which this signal gives notice of an open draw-bridge or turned switch, at any desired distance from the place of danger, entitles it to particular notice by railroad men and engineers. The improvement consists in a new mode of operating a series of signals for day and night, placed near the draw or switch, and also at a considerable distance from it, on either side, by means of eyes and arms. These are so arranged that when the draw or switch is moved, a corresponding motion is communicated to the signals by means of cords or small chains passing from and operated by the draw-bridge or switch, to the signal or signals, a number of which may be used sufficient to insure safety. Thus, when the main track is clear, the signal boards are parallel with the track as day signals, and green lights are shown up and down the track, as night signals, that all is right and safe. And when the main track is broken, either by a turned switch or an open draw, the signal boards are turned at right angles with the track as day signals, and red lights are shown up and down the track as night signals of danger. The signal is turned by a pulley upon the signal staff, over which the cord or chain passes. This arrangement is exceedingly simple as well as cheap and efficient.

An Improvement in the Construction of Cars for Turning Curves.

An improvement in the construction of cars for the purpose of accomplishing the object above named, has been invented by Archibald C. Ketchum, of New York City; it is designed to be used in the running gear of cars, and all other carriages used on railroads. This invention is intended to prevent the liability of cars to run off the track in turning curves, by making all the wheels of the track follow exactly in line of the curve. To effect this result, each side of the truck is made in two parts, these parts being long rectangular plates of the required thickness to support the weight of the car, and connected in such a way as to admit of their sliding, longitudinally in relation to each other, the bearing of one of the two axles being in one of the said parts and that of the other axle in the other part of the said sides. The two parts of each of the two sides being held with a transverse sliding bar, which is connected with a lever having its fulcrum on the inner axle, the opposite end of the lever being attached to the end of the car. The transverse sliding bar is furnished with two slots in each end, which receive studs projecting from the top of the bars, upon the sides of the truck, and are cut at such an angle to each other that, when the bar is moved by the action of the lever, in turning a curve, they will cause the studs to move within the slots, and the sliding sides to move longitudinally so as to bring the axle in the position of radii to the said curve; by means of the arrangement thus briefly described, a rail car will be no more likely to run from the track in turning a curve, than in moving in a direct line. The structure of this car is not complex, and is at least worthy of a trial. Measures have been taken to secure a patent.

New Car Wheel.

Benjamin H. Overhiser, of Binghamton, N. Y., has invented an improvement in railroad car wheels, for which he has taken measures to secure a patent. The nature of the improvement relates to the form and manner of constructing the body of the wheel, more particularly the portion between the hub and rim. In the arrangement of Mr. O., a series or chain of arches are interposed between the hub and rim of the wheel, for the purpose of giving elasticity to the wheel when cast, and also compensating for the shrinking or contracting of the metal while cooling, said arches being connected to the rim by short radial spokes, or otherwise, as desired. It is necessary that improvements in railroad car wheels should be tested by experiment in order to determine, with any definite degree of certainty, their operative practicability. This wheel has good qualities to recommend it, but it should, like all others intended for use, be subjected to trial before being adopted.

Improvement in Tempies for Looms.

Jerome B. Greene, of Worcester, Mass., has taken measures to secure a patent for a new temple for looms, the construction of which is simple and the expense trifling. The cloth is held between rollers placed over or under each edge of the cloth turning on an axis transversely to its edges, and adjustable cups or guards made nearly globular, surrounding the said rollers. These guards have deep recesses in their opposite sides, forming jaws, through which the edges of the cloth pass. The rollers have points upon their peripheries within the cup, to prevent the cloth from sliding from the temple, or the cloth may be held by friction between conical portions of the roller and the guard. The rollers are operated by helical springs upon their axes, which serve to keep the rollers apart, and consequently the cloth at a proper tension. The rods which form their axes are bent in the form of a syphon and are attached to the breast beam by their ends opposite the cups and rollers through which they pass, so as to give a small amount of elasticity to the axes and their attachment while the cloth is passing through the temple.

AIR-COOLING APPARATUS.

Figure 1.

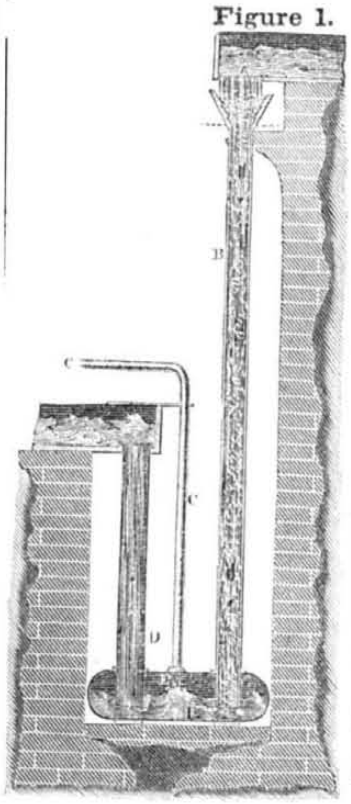


Figure 2.

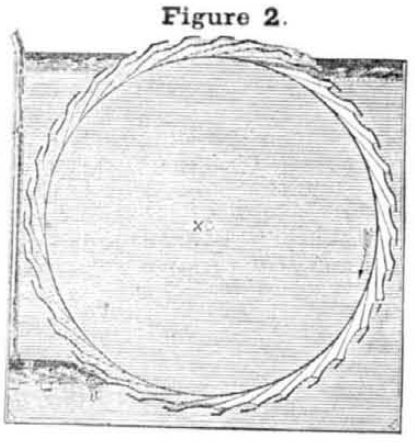


Figure 3.

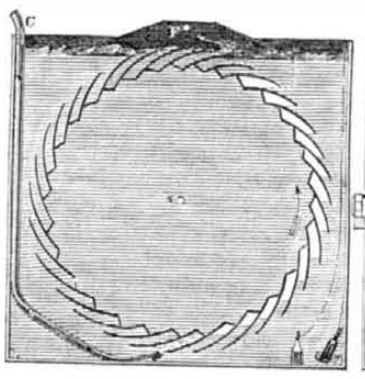
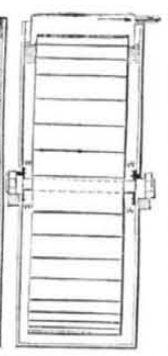


Figure 4.



The annexed engravings are representations of an apparatus for cooling the air in warm climates, or other places where it may be necessary for comfort or convenience. The warm season is rapidly approaching, and is doubtless looked upon by many with dread, particularly in those pent up cities like our own, where a cool breeze is but occasionally felt. Those who desire a constant current of cool air in their dwellings will do well to give the annexed plans for supplying it a careful perusal. Its simplicity will particularly recommend it to those who do not choose to expend a large amount of money in cooling their apartments. Railroad cars might be rendered far more comfortable by the adoption of an apparatus similar to the one here described, taking the air to be used (cooled) from the front of the moving train.

Figs. 1, 2, and 3 are vertical side elevations of different arrangements to effect the above named object; and fig. 4 is an end view of the arrangement, shown in fig. 3.

The readers of the "Scientific American" are already informed that bodies, in passing from a rarer to a denser medium, emit caloric and absorb it *vice versa*. The different plans represented are constructed upon this principle. The stream of water falls through a number of small openings pierced in a metallic plate, A, fixed in the bottom of a trough. The water, after falling for a short distance through this perforated plate, forms into a mass of drops, thoroughly intermixed with air. This mixed air and water is received into a vertical tube, B, of sheet zinc, for instance, which is fixed, air-tight, into a small reservoir or vessel, E; here the air, which is carried down in large quantities with the water, accumulates and becomes compressed in the reservoir and passes out by the air pipe, *c*, which leads to the locality where the cold air is required, while the water, freed from air by settling a moment as it passes through the reservoir, is forced by the pressure of the condensed air up the outlet tube, D, and flows away in the direction of the arrow. The air pipe, *c*, should be throttled by a stop-cock just sufficiently to keep the air compressed in the reservoir to the greatest amount; that is, by the whole hydrostatic pressure of the water in the outlet tube, D. It much air is observed to bubble up through D, it is an indication that the air pipe, *c*, is too much throttled. The water may be mixed with air or broken into spray before it enters the descent tube, in many ways.

The following are deductions from experiments, in one instance, taken from the apparatus above described:—Temperature of the atmosphere 90° Fah., temperature of the water 84°, temperature of the air as it rises in the reservoir, E, at the bottom of the descent tube, 86°, and the temperature of the cooled air as it issues from the air pipe, *c*, reduced (from 90°) to 54 2-3, having lost 35 1-3 by compression; 105 cubic feet of cool air being discharged per minute,—this is far superior to the arrangement for cooling air by compressing the air with a piston and cylinder, as is sometimes done. In this structure of an air cooler, the water must be elevated, or at least received from an elevated position, say 16 or 18 feet high. Another means of compressing the air—more available in many instances—will be by thrusting the air below a sufficient head of water, for instance 6 or 8 feet, by means of an air wheel shown in fig. 2—that is, a water wheel inverted in a tank of water. The mechanical force which would be required to compress the air by any other means, is here employed to turn the wheel which is immersed to within a certain distance of its highest part, the axis, ×, being horizontal and passing through the tank at one side, or both, with a leather washer, W W, fig. 4, to make the hole for the shaft water-proof. This machine effects the compression of air with but little loss of power. The air is collected in small recesses or nests of the wheel, as they rise above the water, and is carried downward in the direction of the arrow, until it comes to the air reservoir, E, when it is deposited; and compressed by the action of the water in the manner first above stated. The edge of the receiver, E, is kept at a uniform and close distance from the edges of the nests upon the wheel, by carrying rollers or small wheels, R, which revolve at each side of the receiver against the edges of the sides of the air wheel, and are kept pressed against them—the edge of the receiver next the wheel having a strip of india rubber upon it to make it fit up to the wheel as the wheel revolves. A pipe, C, from the receiver, conveys the compressed air to the locality where the cool air is required.

Another apparatus for effecting the same purpose, and by which an amount of power is saved, which is lost in fig. 2, is represented in figs. 3 and 4; here the air is compressed and descends through the tube, C, in the direction of the arrow, and passes out through a small orifice in the ends of the tube, under the bottom of the wheel, and is received by its nests or recesses, and conveyed to the receiver, F, from whence it passes to the apartments to be cooled. The force of the air in driving the wheel assists in compressing the air within the tube. The water in this cistern or tank will become considerably cooled in consequence of the expansion of air, and may be used for baths or to cool liquids of any kind. Thus we have an arrangement at once simple, not soon requiring repairs, and very economical of moving power. The cool air produced has no taint of oil, and has the advantage of keeping a large bath of very cold water always at hand, which can serve the purpose of an ice house.

New Lifting and Force Pump.

Henry Johnson, of Hartford, Conn., has invented an improved lifting and force pump, which improvement consists in a new method of combining together in one, the air chamber and upper portion of the pump. The main body of the pump above the base board is cast in three separate parts which are firmly joined together by means of screws, packing, &c.; the middle portion, being made square, and of sufficient size, has passing through two of its opposite sides an intermediate shaft or bolt, which is rendered air-tight by appropriate packing boxes; the said shaft or bolt projecting far enough on each side to allow the handle or handles to be keyed upon its extremities. Upon the central portion of this intermediate shaft or bolt is cast an arm or projection which connects with and works the piston rod. By this improvement the lifting and force pump is at once made cheap, simple, and remarkably strong and durable; and being provided with two handles, as well as being very strong, admits the application of great force, thus rendering it a very powerful forcing pump.

© 1853 SCIENTIFIC AMERICIAN, INC

Scientific American

NEW-YORK, JUNE 4, 1853.

The Progress of Inventions and Inventors.

What some call "great discoveries" are not produced every day, week, nor year, and yet the progress of invention is as steady as the march of time itself. It is certainly true that the boundaries of human knowledge are constantly extending, and this never could happen if new discoveries were not continually unfolded. A new discovery is something brought to light which had not been observed before, and a new invention is its application to a useful purpose. We are liable to overlook the progress that is continually making in science and art, and to forget the benefits which inventors have conferred and are conferring upon community. It is our duty to call in our wandering thoughts from time to time, and not forget the debt of gratitude which we owe, (and which is continually accumulating upon us) to the inventors who are living and acting among us. We cannot allude to and name all the men who are now thinking and working out plans and improvements, but the number is not small, and they all deserve to be highly esteemed and rewarded. We now see a message sent from one end of our continent to another in a few seconds; a few years ago it required more weeks than it now does moments to accomplish the same feat. Here we see a dangerous whirlpool destroyed by the electric spark and a few canisters of gun powder, and there we behold an iron tube thrown across a strait of the sea for the iron horse with his huge train to thunder through it. A short time ago an ingenious inventor discovered a method of sinking iron foundations for bridges by the simple operation of an air pump, and now we see the same principle applied in our cities for the most useful and sanitory purposes. In one place an inventor makes a loom and weaves the most intricate and beautiful patterns; in another place an inventor constructs a machine which performs the most delicate needle work, and at once relieves woman from the most tedious and confining household drudgery. We might mention many other important inventions which are now conferring blessings upon community, but our object principally, is to direct attention to their merits, as particular information can be obtained respecting their nature and operations by examining the columns of the Scientific American. What we hope from community is not to forget living inventors; let them have their reward while they are with us. It is too often the case that nations raise monuments to men when they are dead after having allowed them to suffer and die in penury. It is exceedingly easy to pass complements to deceased benefactors, because such praise costs nothing. Men have starved in garrets who have had statues erected to their memory. We hope the like will never occur again. In this age, with a free press to make hidden things public, we conceive it to be our duty to tell the community from time time, of their duty, to be just and generous to those living benefactors of our race—discoverers and inventors.

The New York Crystal Palace.

This building is very far from being ready to receive goods for exhibition, although it is more than a month after the period when its managers solemnly promised to the world that it should be open for visitors. It is well known to our readers that we opposed the scheme of holding an Exhibition of Industry here so soon after the Worlds' Fair in London, and by a private company whose object was gain, not honor to our country. The reason we opposed it we have given before, namely, that after four, five, or six years, we might be able to have a grand national exhibition, not sectional nor for private gains, but eminently cosmopolite in its objects, yet national in its arrangement. Our sentiments were not dictated by any motive but the love and honor of our country, and the benefit of mankind. It has been said by some connected with the New York Crystal Palace, that we had other motives in view than those we have expressed, but we had not; what personal objects could we have for uttering such sentiments? None. We also expressed our opinions respecting the manner in which the building was projected, and we predicted that it would cost more and give the managers greater trouble than they anticipated, also that we sincerely believed it would not be completed at the time promised. What we predicted has come to pass. The very papers in our city that kindly lent their influence to speak favorably of the Crystal Palace Company, have been obliged to speak in the severest terms respecting the want of good management among its conductors, and the violation of the promise made by them to the whole world to have it ready on the 2nd of last month. There are many people in this city now who came from distant parts of our own country, and from other countries, to witness the opening of the Exhibition, and the probability is, they will have to wait at least four weeks longer, for that eventful day. Two government vessels with Commissioners, we understand, left England two weeks ago, for the Crystal Palace, and vessels from other foreign countries, with goods for the Exhibition, have been lying at our port for more than two weeks. Is this not reflecting some disgrace upon our country through the managers of the Exhibition? It is; for these people have received the erroneous impression that this is a national not a private company's project. The London Palace covered 20 acres of ground; the New York Crystal Palace will occupy only about one-eighth of that space, and yet the former only took eight months in its erection, and was opened on the day promised, while the New York Crystal Palace will not be open for two months after the day it was promised to be ready. It is indeed humiliating to our go-aheaditiveness to think that neither the energy nor punctuality of the English, has been displayed in the erection of this comparatively little structure. The Association has been the means of drawing hundreds to this city at a too early period, thus involving them in great expense, and all because things have not been well managed. Under good and proper management, such a building could have been erected and ready for exhibition more than two months ago. The eminent engineers who were called in from various parts of our country to give the managers of the Association their advice respecting the different plans proposed, found that they were called upon to give merely a formal opinion; hence they at once resolved to have nothing to say in the matter. The Association took their own council, and have suffered for it in more ways than one. We have no doubt if the Exbition had opened on the day promised, but the managers would have drawn in $50,000 by this time, as no less than 100,000 strangers were in our city during the anniversary weeks.

We hope the New York Crystal Palace Managers will make amends for past ills, but to retrive lost estimation, they have a Herculian task to perform. Whatsoever good they do, and whatsoever is honorable, happy will we be to give it circulation, for the honor of our country and the advancement of the arts; but hitherto we have not been able to say, in honesty anything favorable or of good report.

Leather and its Interests.

The leather business of the United States is very extensive: not less than a million and a half of hides are imported into our country every year, made into leather and used for different purposes. The capital invested in the tanning business has been represented in some statistical tables as amounting to $19,000,000; there are about 6500 tanneries in the different States, in which no less than 12,000,000 sides of leather are tanned every year, the value of which amounts to $33,000,000. Any business in which such an amount of money is invested, and in which so many persons are engaged as employers and employed, has strong claims upon our attention, in presenting information which may be useful, or even that which may be claimed as useful. The best articles ever published in any paper in our country, on tanning appeared in Vol. 5, Scientific American. They were written by one of the most experienced, and perhaps the most learned tanner in our country. Since that time a very excellent work on the subject by Campbell Morfitt, has been published by H. C. Baird, Philadelphia, and respecting which our readers can become more fully acquainted by perusing the same. He describes no less than twenty-six different tanning processes, some of which are very curious, some ridiculous, some good, others bad. The work contains Hibbard's patent process, but not that of Eaton, which has been patented since, and by which very excellent leather has been made, we have been told, in ten days. The old methods of tanning were exceedingly tedious, and the grand object with tanners, has been to shorten the process and obtain as good leather as by the old plans.

We learn by the "London Mechanics' Magazine" that a new patent process, named "Prellers," has lately found much favor in London. After the hides or skins are unhaired in the usual manner, they undergo a partial drying, and receive a uniform coating of a peculiar paste composed of various vegetable and saline substances. The vegetable substances employed contain a large proportion of starch, such as barley, rice, or wheat flour, a little gluten, some butter, or oil and grease, some common salt, and some saltpetre. The hides are laid upon tables and smeared on the fleshy side, with the said paste, and in that state are put into the interior of large drums, which receive a rotary motion, and by which the hides are greatly agitated, and the paste (by pegs in the inside of the drums), is forced into the pores of the hides or skins, or rather they are kneaded along with the paste for two or three hours, after which they are drawn out. They are then found to be in a partial dry state, then hung up and aired for two hours, and again laid upon the table, where they receive another dose of the same paste, and are again returned to the drums a second time, when the same operation as that described is again performed. After this they receive a third smearing with the paste, and are kneaded in the drums, after which they are taken out and hung up to dry, and are then fit for the currying process. The leather thus produced is stated to be much lighter than that produced by oak or other tan barks, but is much stronger and will wear much better. It is asserted that for machinery bands it is twice as strong as oak-tanned leather, and that sheep and goat skins are rendered very tough and durable. It is said that calf skins are tanned by this process in about three hours, and the thickest ox-hide in three days.

We are not aware that any such process for tanning is described in any work on the subject, or has been practiced in our country. It is our opinion that it may make excellent uppers for boots and shoes, but not so good sole leather as oak bark. It is stated that the brains of animals is also used in the paste, and that the salt and nitre are only employed to preserve the animal and greasy matters from putrifaction. The process has some resemblance to that employed by many tribes of our Indians for tanning their skins for moccasins and other purposes. They use the brains of animals, mixed with lye made of the wood ashes of their fires, and knead the skins and rub them with the pasty mass, upon the same principle as that employed in the "Peller process." When the tanning of the skins is completed according to their notions, they are finished by drying them, or rather smoking them, in a pit in the ground, which is covered with bark and some earth. We have seen very good brown leather made by this process. We are not able to give the exact proportions of the paste used by Preller, but this does not make much matter, for some of our tanners can surely make up a paste with flour, ox brains, and oil or grease, &c., and give it a fair trial, by kneading a skin or two in a tub, with a beetle, so as to test the principle of the process. There is nothing like giving every thing (unless it is manifestly absurd) which is set forth as an improvement, a fair trial, and this is the reason why we have presented the foregoing information, in order that it may be tested by some of our tanners to see whether it has any merit or not.

A company having a million of capital, is forming at Baltimore, to build a line of English steamers.

Events of the Week.

A Bronze Statue.—A very fine bronze statue of De Witt Clinton has been on exhibition at our City Hall during the past week. It was continually surrounded with a crowd of admirers from the moment it was erected on its pedestal. The statue is 10½ feet high and the pedestal 8½, making the altitude 19 feet. The artist is H. K. Brown, of Brooklyn, N. Y., who has done honor to himself and the art by this noble work. We do not like to see huge statues on low pedestals, but this work is so majestic, there is so much spirit in the whole, the face being truly fine; so much thought and genius sitting on the brow, fire in the eye, and bold determination in the firm compressed lips, that it at once commands and rivets admiration. The dress is the old-fashioned short clothes—knee-breeches, long stockings, and slippers, with the folds of a mantle gracefully swelling around it.

The casting was done at Ames' foundry at Chicopee, Mass., and does credit to those engaged in the minor manipulations. We wish that our citizens would erect such a statue to Robert Fulton; we like such testimonials to the memory of departed worthies far better than tall shafts or huge piles of masonry. This work to the memory of Clinton, we believe, is strictly private; this is no credit to the people of this State, nor this great city, which has been so greatly benefitted by that work of which he was the chief promotor—the Erie Canal—which united the Atlantic Ocean and Lake Erie together. It was hoped by many that the people of this State, or those of Albany city, would have at one time erected a public monument over his grave, but there did not appear to be enough of spirit or gratitude in the people to do this; hence his remains were removed by his relatives, a few years ago, and interred in Greenwood, in the family burial plot, where this noble work of H. K Brown's genius is to be erected, and which will remain for centuries to let future generations know where De Witt Clinton sleeps.

Curing Small Pox.—Dr. A. Kendall, of this city, has advertised in the "Times," that he can cure small pox in two or three days, and that he is willing to go into any Hospital along with Commissioners appointed for that purpose, and prove what he asserts he can do to their satisfaction. He also says that he can learn any person to do what he does, in the course of a few hours. Let the skill of Dr. Kendall be tested in some one of our Hospitals, under Commissioners appointed by the City Fathers.

Hats and Tables Moving.—By the late news from Europe, it seems that the table moving is exciting a most extraordinary amount of attention both in Germany and France. Jules Jannin has written a wonderful article on the subject, and three members of the Academy of Sciences have published an account of several successful experiments of table moving made by them. It is stated that a circle was formed on a hat, and it soon began to spin round like a top. It is also asserted that some students in a medical college in Germany, formed the circle with a *maniken*, and it soon began to move and spin round, and at last made the experimenters take leg bail for their impertinence. This latter story, and that about the hat, however, need confirmation, but there can be no doubt but that many people in Paris are now convinced from the table movings, that perpetual motion has at last been discovered.

Church Struck with Lightning.—On Sunday, the 22nd inst., the Congregational Church at Lockport, N. Y., was struck by lightning during divine service, and sad to relate, one member of the church—Mr. Croker—was killed, and a number severely wounded. The electric fluid passed down the steeple, and entered the gallery by two lamp wires, where it struck and paralyzed those who were in the choir. It is stated that there was no lightning conductor on the spire, and there can be no doubt but if there had been a properly constructed one, this accident would not have taken place. The lightning was seen like a ball of fire, and the shock was terrific. The building was but very little damaged, and it is supposed that all those who have been injured will recover.

© 1853 SCIENTIFIC AMERICIAN, INC

Reported Officially for the Scientific American

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING MAY 24, 1853.

MACHINES FOR PULVERIZING AURIFEROUS QUARTZ AND AMALGAMATING THE GOLD—By Hiram Berdan, of New York City: I claim, first, attaching the ball or sphere, obliquely to the inclined shaft, by the pin box and sleeve, as described, in combination with the inclined shaft and inclined bowl, as set forth.

Second, in combination with said bowl, I claim the heating chamber or furnace, arranged, constructed, and operating in the manner specified.

[See engraving No. 9, Vol. 8, Sci. Am.]

GAS BURNERS—By S. R. Brick, of Philadelphia, Pa.: I do not claim passing the gas through a small, long aperture, nor a sudden deflection of it, nor a descent of it, nor any of them together, less than the whole.

But I claim the arrangement and combination of the centre conducting pipe and its capping pipe, inside of the common burner, as described.

ENGRAVING MACHINE—By John B. Blair, of Alton, Ill.: I claim, first, so combining the needle, whether sharp or blunt, with a pentagraph or other copying or tracing instrument, through the medium of double carriages, moving at right angles to each other, as that the dots or punctures of said needle may be dispersed or aggregated at pleasure, for the purpose of forming the lights or shadows, the character of the lights and shadows being indicated by a sliding scale moving before the eye, or under the hand of the operator, as described

I also claim the combination and arrangement of the sliding box on the bar, the three cords (one cord connecting the sliding box with the spring lever, and two connecting the sliding box with the spring lever and pedal), and an arm, for the purpose of moving, by means of the pedal, the wheel E towards or from the centre of the wheel F, on the face of which it works spring tight, to change its motion and give to the needle a relatively changed motion, as specified.

I also claim, in combination with the carriage and needle, the wheel, G, with its lifting piece and the cam wheel, H, or their equivalents, for changing the character of marks, lines, or dots upon the plate to be engraved at pleasure, and this I claim, whether the same be operated in connection with the pentagraph or not, as described.

KETTLE BAILS—By T. H. Dodge, of Nashua, N. H.: I claim the sliding dovetail, or other shaped piece, which slides on the bail in combination with the female dovetail or other shaped groove, cast in the flanch or ear, either on the inside or outside, for keeping the bail, permanently fixed in any position desired and for any length of time, and admitting of its being left loose, and operating, if desired, like the ordinary swinging bail.

[See notice of this invention on page 92, Vol. 8, Sci. Am.]

RADIATORS FOR STOVES—By J C. Fletcher, of Burlington, Iowa: I claim the interposition between the fire chamber and the exit pipe of a stove, of a series of concentric flues, so arranged, as that the heat of one flue shall pass through the partitions, and in whole or in part, be transmitted to the next flue, or portion of the flue, in advance, and prepare it for transmitting the draught through the series, as described.

WATER METRES—By John Hartin, of New York City: I claim the adjustable box or stop on one end of the cylinder, for the piston to strike against, for the purpose of preventing the pin in the arm from straining upon the stop in the slotted arm, after the tilting of the lever, as set forth.

CONSTRUCTION OF HARROWS—By Lewis Lupton of Winchester, Va.: I claim constructing the frame of a harrow, of double metallic bars, or of flat straps or pieces of metal and the forming of sockets thereon, by bending the metal, or otherwise, for inserting the teeth or tines, as described, and the uniting the bars, of pieces of metal, and the combining therewith, the manner of bracing or staying the same, by the rod and coupling, as set forth.

MEAT CUTTERS—By Stanislas Millet, of New York City: I claim the combination of a set of revolving knives or cutters, with the top plate and revolving dish, formed as described, and arranged, and operating so as to effect the sub-division of the matter by the action of the cutters upon it, in passing through the slots in the cover substantially in the manner set forth.

WATCHES AND CHRONOMETERS—By Thomas Nelson, of Troy, N Y.: I claim the method of constructing watches or chronometers, of any kind, so as to permit the employment of a spring barrel, of a size that shall occupy, nearly the entire interior diameter of the watch case or frame, and which I effect; by placing the movements upon the top of the barrel and communicating the motion of the barrel to them, by means of a ring fixed on the interior of the case, or frame, with teeth on its inner edge, concentric with the barrel, into which teeth, the teeth of one or more wheels of the movements may cog, or take, as set forth.

CLOVER HARVESTERS—By J. A. Wagener, of Pultney, N. Y.: I claim for harvesting clover heads without the stalks is the arrangement of the solid or hollow cylinder, set with knives on its periphery, as described and just near enough to the fixed knife, as to the concave of the fingers, to admit space enough to allow the clover heads to pass through, without being crushed, and so that the combined action of the forward movement of the machine, and the adjustable guard plate, and the knives, the stems may be drawn in and severed close to the heads.

Second, making the teeth, so that they will spring and vibrate, towards or from each other, as described.

SPIRIT LAMPS—By A. J. Walker, of New York City: I do not claim the employment of the inner wick tubes, secured in a stationary bar, and having other tubes sliding over them, which extinguish the light, when the top of the lamp is unscrewed; but I claim the employment of the plate, which serves as a protection against the fluid rising and becoming heated and exploding; and also, as a support for the inner tubes, in combination with the spiral spring; and rod, the rod serving to connect the said plate with the top of the lamp, and the spring serving to hold the plate firmly down on the flange, and also to throw up the cap and extinguishing tubes, instantaneously, after the top has been unscrewed, the whole being constructed as described.

[See notice of this invention on page 82, Vol. 8, Sci. Am.]

PROCESSES OF DISTILLING ROSIN OIL—By Madison Page, of Williamsburgh, N. Y. (assignor to S. W. Hawes), of Chelsea, Mass.: I claim the employment, in the manufacture of rosin oils of different qualities, re-distilling the same and purifying it, substantially as set forth, the introduction of the steam into the commencement of the goose-neck above the rosin in the still so that the vaporized oils from the rosin will pass through and be commingled with said steam in their passage to the worm for condensation, for the purpose of purification, &c., as set forth.

RE-ISSUE.

REAPING MACHINES—By Cyrus H. McCormick, of Chicago, Ill. Patented Oct. 23, 1847: I claim placing the gearing and crank forward of the driving wheel, for protection from dirt, &c., and thus carrying the driving wheel further back than heretofore, and sufficiently so to balance the rear part of the frame and the raker thereon, when this position of the parts is combined with the sickle-back of the axis of motion of the driving wheel, by means of the vibrating lever, as described.

And I also claim the combination of the reel, for gathering the grain to the cutting apparatus and depositing it on the platform, with the seat or position of the raker, arranged and located as described, or the equivalent thereof, to enable the raker to rake the grain from the platform and deliver and lay it on the ground at the side of the machine, as described.

DESIGN.

PARLOR STOVE—By S. D. Vose, of Albany, N. Y.

Experiments upon the use of Salt-water in Steam Boilers.

A paper was real before the institution of Civil Engineers, London, noticed in the Mechanics' Magazine, which contains some interesting experiments in relation to the use of sea water in our steam boilers. There are some difficulties attending its use which are not easily provided for, but perhaps some of our many ingenious inventors may suggest a remedy. It appears by the experiments above referred to, that an increase of heat is required to generate steam from salt water, the boiling point of a solution being above that of pure water in proportion to the quantity of salt dissolved by a constant weight of water. And again there is a waste of fuel necessary to blow off the brine frem the boiler in order to prevent incrustation; it has been suggested that the condensed steam may be used, and thus avoid the accumulation of brine; this has been tried, and we believe with very good results, although at the expense of an amount of power sufficient to operate the condenser. It has been also proposed to absorb the caloric from the brine as it passes from the boiler, and retain it for use a second time; the experiments prove that the increase of temperature of brine above that of pure water was owing entirely to the salt, for the steam arising from both waters were of the same temperature under similar pressures. The loss of caloric by the use of this water was owing to the salt dissolved, which retained the heat in a latent state. The losses to be estimated for blowing off the brine were the power necessary to discharge, and restore the deficiency by feed water—the injection of feed water, and the loss of capacity for heat of the solution. Estimates were made upon two boilers of different dimensions with feed and steam of each different temperatures, from which it appeared that the most economical system was to blow out one-sixth, at intervals varying from 6 to 10 hours, working from a density of 30° to 35°. Data were obtained of the specific gravity of different waters which showed a variation of from 1026 to 1031. The water from inland seas being often more dense; the Dead Sea, for instance, had a specific gravity of 1211°; 1000 parts of sea water contained from 22 to 28 parts of muriate of soda, and from 8 to 13 parts of other salts, which were chiefly soluble at high temperatures except the sulphate and carbonate of lime, which averaged together four-tenths of a part in every 1000 of sea water. Common salt containing from 94 to 96 parts of muriate of soda, and from 4 to 6 parts of other salts in 100 of dry salt. Sea salt contained from 72 to 77 parts of muriate of soda, and from 18 to 13 parts of other salts in 100 of dry salt; in the experiments from which the results of the paper were derived, a saturated solution of common salt had a specific gravity of 1213, or 77° of the hydrometer, and 100 parts of pure water dissolved very nearly 40 parts of salt at 60°, whereas a saturated solution of sea salt had a specific gravity of 1236 or 85° of the hydrometer for the same weight (40 parts) dissolved in 100 of water—but these experiments were not necessarily constant, because the constituent parts of sea salt varied—the greater the proportion of muriate of soda the less was the specific gravity for the same weight of salt in the solution. The following were the results of the experiment:

"The per centage of salt in a solution was in direct proportion to its density. The time required to obtain a given degree of concentration was directly as the departure of the original density from concentration, the capacity of the boiler, and the relative volume of steam. And inversely as the density of the feed water, the capacity of the cylinder, and the velocity of motion.

As regarded time, it was preferable to employ a low pressure, as the time consumed in arriving at a given concentration was longer as the pressure was lower. In equal weights of salt dissolved in equal weights of water, the more heterogeneous the salts the greater was the density they exhibited in solution. The excess of temperature of the water of any solution, above that of the steam generated from it, whether below or above atmospheric pressure, was constant for any solution whatever might be the pressure and the temperature of the steam. The excess being in direct proportion to the quantity of salt dissolved by a constant weight of water. The expansion of any solution, in the excess of the expansion of pure water, was in direct proportion to the salt dissolved by a constant weight of water. It was also ascertained that the water spaces of boilers should be small and the feed water as hot as possible to save fuel, and the density of feed water should be kept as low as possible."

Recent Foreign Inventions.

MANUFACTURE OF AMMONIACAL SALTS AND MANURES.—E. Pettitt, of Kingsland, patentee. This invention relates to a new method of making ammoniacal salts from certain animal matters, also the manufacture of manure.—The inventor takes one hundred pounds of fish, and places them in a leaden trunk, and adds about five pounds weight of sulphuric acid diluted. This mixture is allowed to stand, (being occasionally stirred,) until it assumes a homogeneous pasty consistence—sometimes heat is applied to facilitate this operation. The acid liquid or pickle, after it has been in contact with the animal matter for a sufficient length of time, is drawn off and pressed out of the fish. This acid liquor is next evaporated almost to dryness to extract the sulphate of ammonia therefrom, in the form of crystal, which may then be purified in the usual way.

To obtain the muriate of ammonia, lime is added to the pasty mixture produced as aforesaid, or the acid liquor drawn from it, distilled at a great heat nearly to dryness, passing the products of distillation through a solution of muriatic acid, or muriate of iron; the muriate of ammonia may then be evaporated in the usual way by crystallization.

Instead of making the sulphate or muriate of ammonia, the inventor takes the fishy and acid mass, and submits them to artificial heat. The fish may then be first ground up and then submitted to about 3 per cent. by weight of sulphuric or muriatic acid. The 100 lbs of fish is only an example to show the proportion of acids employed. Some kinds of fish are better than others. This manure may be mixed with swamp muck, charcoal, or superphosphate of lime. This method of making manure is different from that described on page 211, this Vol., Scientific American, and appears to be the same in principle exactly, as that for which a patent was granted to Dr. R. Hare, of Philadelphia, about two years ago.

TREATING THE FLEECES OF SHEEP.—Geo. Stuart, of Glasgow, N. B. This invention consists in using a new compound, for the protection of the fleeces of sheep in order to render wool free from moisture, and to add warmth and comfort to the animal, also to render the wool better adapted for manufacturing purposes. The old composition which was used for this purpose was a mixture of butter and tar, the new composition is simply rosin oil or colophon, in which is mixed a quantity of solid rosin. This mixture is heated up and applied to the fleece of the animal until it is uniformly coated. Our farmers would certainly look twice before they would expend the amount of money required to obtain a patent for simply treating the flocks of sheep with rosin oil.

The above are condensed from the "London Repertory of Inventions" for May, in which we see two patents granted for covering substances with vulcanized india rubber, one patent was for covering wires, and the other for sheathing ships. In America patents are denied for the mere application of old substances to new purposes; in England patents are granted, and justly too, for such new applications. It has been too much the policy of our Patent Office to find out arguments and reasons to reject applications for patents, to the great hindrance of progress in the arts. We hope a more liberal policy will now be exhibited.

Important Patent Case.

WHITE LEAD.—U. S. Circuit Court, Judge Nelson presiding.—The parties were George W. Campbell, complainant, against the Atlantic White Lead Co., N. Y. This trial lasted three days, viz., on the 11th, 12th, and 13th ult. The action was brought for the infringement of a patent granted to the plaintiff, November 20th, 1847, and re-issued August 2nd, 1852, for a machine for casting bullets, and the buckles of lead used in the manufacture of white lead. It appeared that the plaintiff's machine was very useful in saving labor and in other respects, and that he had sold a license for one to the Brooklyn White Lead Company for $1,500, and another to another company for $1,250, and that he had some negotiations about selling one to the defendants in 1851, and was offered and refused $750, and that the defendants then made and put into operation a machine which the plaintiff claimed was an imitation of his machine, but defendants claimed to be different. The Judge charged the jury that there was no question about the originality of plaintiff's invention, and no difficulty in the construction of his specification, and that they were to determine whether the defendants' machine was substantially like the plaintiff's. That the difference of form was immaterial, if the principles and idea of the machine were derived from the plaintiff's; that if they found for the plaintiff, he was entitled to damages from the 2nd of August to the commencement of the suit, November 15th, 1852; that they must find the actual damage, as the Court had the power to treble the damages; that the plaintiff is entitled to the profit made by the defendants, by the use of the machine during that time, as to which it appeared that there was a saving of labor of three men a-day and other savings. The jury found a verdict for the plaintiff, $275.

Success of Mr. Samuelson's Digging Machine.

An article is published in the "Gardener's Chronicle and Agricultural Gazette," England, in which it appears Mr. Samuelson's digging machine has proved entirely successful. This machine was first tried at the Annual Exhibition of the English Agricultural Society, at Bristol, sometime since, but proved nearly a failure in consequence of the want of a suitable provision for keeping the forks of the digger clean—as this machine works by forks instead of spades or plows. This difficulty could not well be remedied in the arrangement then used by the inventor, Mr. S., but it seems a slight change in the construction has enabled him to adopt what he denominates a cleaning comb for keeping the teeth or prongs free from clay or other adhesive matter, so that it now operates with entire success, and gets over from three to four acres per day. It requires about six horse-power to drive it. The machines are worth about $100, and are cheap considering the amount of work it will perform; it is adapted to general use, but particularly for the interval forking of the land in the system of row cultivation of grain crops. It is now at work near Banbury, Eng.

U. S. Ship Princeton.

This steamer, having completed her repairs and alterations at the Gosport (Va.,) navy yard, started down, on Thursday the 19th, on a trip to the Capes, for the purpose of testing her machinery. After proceeding as far as Old Point, the rock shaft gave way and she was compelled to remain there until Friday.

© 1853 SCIENTIFIC AMERICIAN, INC

TO CORRESPONDENTS.

W. W. F., of Ala.—We have entered all your subscribers as you requested, and such back numbers as we had on hand we sent to you, and regret at not being able to furnish you with all of them—your subscription with the others we have marked to expire at No. 26 next volume.

P. H. W., of N. Y.—By addressing the "American Gutta Percha Co.," this city, you will get the information you solicit of us.

T. S. I, of Ohio—We are still of the opinion that your steam guage presents no patentable novelty; still we have no objection to render our services in trying to obtain one for you, and might succeed.

T. W., of Tenn.—The subject on which you make so many inquiries is too *bony* for us to cope with; if you think of going into the business of bone grinding, you had better address your twenty queries to some concern that can give you *practical* information—we cannot.

L. B. A., of Pa.—The spring carriage wheel patented by Messrs. Lamb & Root, and illustrated on page 172, Vol. 6, Sci. Am., is almost identical with yours

O. M., of Ill.—Your plan for ventilating railroad cars is no doubt new, but we think it has more objectionable features than Paine's, and less practical ones than almost any we have seen.

T. D. S, of Ohio—Agreeable to your request, your description of the pump has been filed for future reference.

I. Z. A. W., of Phila.—We do not think it expedient to publish the engravings of your invention until we get the foreign patents secured, which will be done immediately.

A. M. G., of S. C.—We have sent you a bound copy of Vol. 5 (incomplete) and credited you $1 in continuation of your subscription.

A. B. B., of N. Y.—The models of your railroad switch came duly to hand; we find your invention has been anticipated by Wm. Colby, of Augusta, Ga., who has secured his invention by an application for a patent.

D. & Co, Va.—Messrs Stillman, Allen & Co., Novelty Works," this city, will furnish you with as good a fau blast as you will be able to find elsewhere.

A. F. T., of N. Y.—On page 5, Vol. 6, Scientific American, you will find an engraving of an axle box which is identical with yours. There would be no chance for a patent should you apply.

A. B., of Mich —Your inquiry is about the same as many others we have had on the same subject. Irving's boiler is no doubt an excellent kind, but we cannot give a full description of it until the Foreign Patents are issued, which we expect by next steamer. See notice of this invention on page 228, Vol. 8.

R. H., of N. Y.—The best thing you can do for your own benefit is to get an engraving published in our columns.

P. & R., of Ill.—We will get up engravings of your self-loading cart immediately: we had forgotten you. There has been no examination of your case yet.

R. S, of Ind —We shipped a mortising machine to you by the Pennsylvania and Ohio Transportation Line on the 27th.

Money received on account of Patent Office business for the week ending Saturday, May 28:—

J. Mc., of N. Y., $10; P. S., of N. Y., $15. J. K. & W. G., of Pa. $10; J. H., Jr., Wis., $25; J. M., of N. J., $30; W. W, of R. J., $25; J. R. H., of Me., $36; J. S., of Va., $35; S. M., of Pa., $25; J. B. C., of Ohio, $50; A. & S., of N. Y., $20; J. N., of N. J., $25; G. N, of N. Y., $20; W. S., Jr., of Pa., $45.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday May 28:—

P. S., of N. Y.; G. B., of N Y.; J. K. & W. P. G., of Pa.; W. W., of R I.; G. M. B., of N. Y.; A & S., of N. Y.; W. S., Jr., of Pa.; J. G., of N. Y. (2 cases); J. N., of N. J.; W. S., of N. Y.; P. F. C., of Ohio; S. M, of Pa.; G. N., of N. Y.

A Chapter of Suggestions, &c.

PATENTEES—Remember we are always willing to execute and publish engravings of your inventions, provided they are on interesting subjects, and have never appeared in any other publication. No engravings are inserted in our columns that have appeared in any other journal in this country, and we must be permitted to have the engraving executed to suit our own columns in size and style. Barely the expense of the engraving is charged by us, and the wood-cuts may be claimed by the inventor, and subsequently used to advantage in other journals.

BACK NUMBERS AND VOLUMES—In reply to many interrogatories as to what back numbers and volumes of the Scientific American can be furnished, we make the following statement:—Of Volumes 1, 2 3 and 4—none. Of Vol. 5, all but six numbers, price, in sheets, $1; bound, $I75. Of Volume 6, all; price in sheets, $2; bound, $2,75. Of Vol. 7 all; price in sheets, $2; bound, $2,75. Of Vol. 8, all the back numbers subsequent to No. 27, but none previous.

PATENT CLAIMS—Persons desiring the claims of any invention which has been patented within fourteen years, can obtain a copy by addressing a letter to this office—stating the name of the patentee, and enclosing one dollar as fee for copying.

PATENT LAWS, AND GUIDE TO INVENTORS.—We publish, and have for sale, the Patent Laws of the United States. The pamphlet contains not only the laws but all information touching the rules and regulation of the Patent Office. Price 121-2 cts. per copy.

ADVERTISEMENTS.

THE WATER CURE JOURNAL—A New Volume—Now is the time to subscribe—Published monthly, in a beautiful quarto. Illustrated with engravings, exhibiting the Structure, Anatomy, and Physiology of the Human Body, with familiar instructions to learners. It is emphatically a Journal of Health, designed to be a complete Family Guide in all diseases.

TERMS—Only one Dollar a Year, in advance. Address, post-paid, Fowlers and Wells, Clinton Hall, No. 131 Nassau st, New York.

"The Water Cure Journal holds a high rank in the science of health; always ready, straightforward and plain-spoken. it unfolds the laws of our physical nature without any pretensions to the technicalities of science, but in a form as attractive and refreshing as the sparkling element of which it treats."—N. Y. Tribune. 38 4

THE PRACTICAL CONSTRUCTION OF MAchines, or Elements of Mechanism, with numerous specimens of modern machines, remarkable for their utility and ingenuity, illustrated with 243 engravings by T. Baker, Civil Engineer, author of "Railway engineering," &c, 1 Vol., bound in scarlet cloth, $1. Contents,—wheel work, producing motion by contact; teeth of wheels, hooks, joints, friction wheels, pulleys producing motion by wrapping contact, mechanism for modifying motion, machines commonly used in the arts of construction and for domestic purposes. Pumps and other hydraulic machines, machinery for the manufacturing and refining sugar; on the friction of machinery; self-acting lathes; on the production of brown glazed stone ware, &c., just published by A. HART, corner of 4th & Chestnut st., Philadelphia. 1

THE ILLUSTRATED PHRENOLOGICAL Journal—Devoted to Phrenology, Physiology, Mechanism, Education, Agriculture, the Natural Sciences, and General Intelligence, profusely illustrated with engravings. Every family, and especially all young men and women, should have a copy. Published monthly at One Dollar a-year. All letters should be post-paid, and directed to FOWLERS AND WELLS, Clinton Hall, No. 131 Nassau street, New York.

Young men about launching forth upon the activities of life, and anxious to start right, and understand their course, will find this Journal a friend and and monitor, to encourage them in virtue, shield them from vice, and to prepare them for usefulness and success in life. The various occupations will be discussed in the light of Perenology and Physiology, so that every one may know in what pursuit he would be most likely to succeed—PUBLISHERS. 384

LOGAN VAIL & CO., No. 9 Gold st, New York —Agency for Geo. Vail & Co., Speedwell Iron Works, Norristown, N. J., furnish and keep on hand Portable Steam Engines of various sizes, Saw and Grist Mill Irons, Hotchkiss's Water Wheels, Iron Water Wheels of any size, Portable Saw Mills, complete; Bogardus's celebrated Planetary Horse Powers; heaving forgings and castings for steamboats and rolling mills, Ratchet Drills of superior quality for machinists, Saw Gummers, Hand drills, Tyre Benders, and shafting and machinery generally. 38 1y

WANTED—A situation as Constructer or Superintendent in a machine work, by an engineer who has been brought up in one of the largest establishment in Europe. He is competent to take charge of pattern shop, foundry, and machine shop, and can produce the very best references from Europe and America He wishes to be employed for marine engine work, only. For particulars address 'Constructer," box 650 Philadelphia P. O. Communications will be properly attended to. 38 2*

FIRE BRICKS,—Fire Sand, and Moulding Sand, for Iron and Brass Founders, for sale by G. O. ROBERTSON, 135 Water st, corner of Pine, New York. 38 8*

AMERICAN PIG IRON—Viz., Armenia, William Penn, Allentown, Swede, Durham, Sterling and Mount Hope brands; also No. 1 soft Scotch Pig Iron, all in yard here, and for sale by G. O. ROBERTSON, Office 135 Water st, corner of Pine, New York. 38 4*

NOTICE—FOR SALE, a vertical Double Cylinder Engine, of three horse power, with Boiler, Governor, and Force Pump, all complete and in working order (has been used but a few weeks), for the low sum of $200. For further information address DANIEL FAY, North Blanford, or Wm. FAY, Chester Factories, Mass. 38 2*

GERMAN BLACK LEAD—The best kind for polishing stoves, for sale in bulk by G. O. ROBERTSON, 135 Water st, corner of Pine, N.Y. 38 8*

IRON FOUNDERS' FACING MATERIALS—Viz, Pulverized Black Lead, Soapstone, Hardware Charcoal, Anthracite, and Sea Coal, of approved quality, for sale by G. O. RCBERTSON, office 135 Water st, corner of Pine, New York. 38 8*

SAND PAPER, GLUE—"Excelsior" Sand and Emery Papers, "Abbott's" Manilla Sand, and Match Papers, Emery Cloth, Emery, Emery Grit, Pumice Stone ground and in lump, of very superior quality; also Glue of Upton's, Cooper's, and all other brands, in quantities to suit purchasers, at the manufacturers' lowest prices, for sale by WILLIAM B. PARSONS, 290 Pearl st, (corner Beekman) N. Y. 37 3*

SPOKE MACHINES, SPOKE MACHINES—The best and most perfect machine now in use, designed expressly for turning spokes of all sizes, is the one invented by Jenkins & Knight, and patented in January last The Machine is capable of turning 200 spokes in an hour, and finishes the spoke including the shoulder. The subscribers, who are now the sole owners of the patent, are prepared to receive applications for machines or territorial rights.
M. SCHOMMAKER & J. M. COOPER,
35 5* Kingston, N. Y.

PORTABLE STEAM ENGINES—The subscriber is now prepared to supply excellent Portable Engines, with Boilers, Pumps, Heaters, etc., all complete, and very compact, say 1, 2, 2 1-2, 3, 4, 6, 8, and 10 horse-power, suitable for printers, carpenters, farmers, planters, &c, they can be used with wood, bituminous, or hard coal; a 2 1-2 horse engine can be seen in store, it occupies a space 5 feet by 3 feet, weighs 1500 lbs., price $240; other sizes in proportion. S. C. HILLS,
27eotf Machinery Agent, 12 Platt st, N. Y.

PIG IRON—American and Scotch, of favorite brands; also Cupola Fire Bricks, Fire Clay, Sand and Foundry Facings of every approved description, for sale by G.O ROBERTSON, & CO., office 135 Water street, (corner of Pine), N. Y. 31 6eow*

GARDINER'S PATENT MAGNETIC GOLD Washer, Amalgamator and Separator.—This is the most perfect machine for Gold Mining that has been invented; it performs the operation of washing the earth or pulverized quartz rock, amalgamating and magnetic separation of black sand or oxyde of iron, all at one movement, saving every particle of gold dust, however minute. With this machine two men can perform as much work per day as ten by any other process, and save all the gold A full explanation of its operation will be given by the manufacturer. The public are invited to examine. Price $250. Iron Retorts at wholesale and retail.
NORTON & GARDINER,
37tf 47 Dey street, N. Y.

PATENT HYDRANTS AND COCKS—Bartholomew's Patent Self-acting Double and Single Hydrants and Cocks are in extensive use and much approved of, are strong, durable, not likely to get out of order, always shut when not in use, not like ly to freeze, avoid waste of water, do not burst pipe. The hydrants are cheaply repaired without digging up; double hydrants supply two lots and sixty tenants. The cocks are adapted for water closets, require no care in using; always shut, being self-stopping, give a good supply; the double valve cock avoids the expense and space of cistern, and gives a uniform supply each time used. One service pipe will supply twenty, do not freeze nor overflow, and make the cheapest and best job. Plumbers only supplied at the factory, 84 Marion st, N. Y. City. All work warranted. 35 4*

BEARDSLEE'S PATENT PLANING Tonguеing and Grooving Machines—These celebrated machines have now been generally introduced in various portions of the United States. More than thirty are now in successful practical operation in the State of New York alone. As an illustration of the extent of work which they are capable of performing, with unrivalled perfection, it is sufficient to state that, within the last six months and a half, over five millions of feet of spruce flooring have been planed, tongued and grooved by one of these machines at Plattsburgh, N. Y., never running to exceed ten hours a day. The claim that the Beardslee machine was an infringement upon the Woodworth patent, has been finally abandoned; and after the proofs had been taken, the suit instituted by the owners of that patent was discontinued, and the whole controversy terminated on the first of November last. Applications for machines or rights may be made to the subscriber, GEO. W. BEARDSLEE, 57 State street, or No. 764 Broadway, Albany.
15tf

BARLOW'S UNSURPASSED Planing Tonguеing and Grooving Machines. Testimonials of the highest character can be given of their superiority over all others in use. For rights or other in formation. Apply to A. K. Wellington, 184 Twelfth street, New York City. 32tf

WOODBURY'S PATENT PLANING Machines—I have recently improved the manufacture of my Patent Planing Machines, making them strong and easy to operate, and am now ready to sell my 24 inch Surfacing Machines for $700, and 14 inch Surfacing Machines for $650 each. I will warrant, by a special contract, that ONE of my aforesaid machines will planeas many boards or plank as two of the Woodworth machines in the same time, and do it better and with less power. I also manufacture a superior Tonguing and Grooving Machine for $350, which can be either attached to the Planing Machine, or worked separately. JOSEPH P. WOODBURY, Patentee, Border st, East Boston, Mass. 29tf

THE NEW HAVEN MANUFACTURING Company, New Haven, Conn., having purchased the entire right of E. Harrison's Flour and Grain Mill, for the United States and Territories, for the term of five years, are now prepared to furnish said mills at short notice. These mills are unequalled by any other mill in use, and will grind from 20 to 30 bushels per hour of fine meal, and will run 24 hours per day, without heating, as the mills are self-cooling. They weigh from 1400 to 1500 lbs., of the best French burr stone, 30 inches in diameter: snugly packed in a cast-iron frame, price of mill $200, packing $5. Terms cash. Further particulars can be had by addressing as above, post-paid, or to S. C. Hills agent N. H. M. Co., 12 Platt st, N. Y. 28tf

ENGINEERING—The undersigned is prepared to furnish specifications, estimates, plans in general or detail of steamships, steamboats, propellers, high and low pressure engines, boilers, and machinery of every description. Broker in steam vessels, machinery, boilers, &c. General Agent for Ashcroft's Steam and Vacuum Gauges, Allen & Noyes' Metallic Self-adjusting Conical Packing, Faber's Water Gauge, Sewall's Salinometers, Dudgeon's Hydraulic Lifting Press, Roebling's Patent Wire Rope for hoisting and steering purposes, etc. etc.
CHARLES W. COPELAND,
29 13* Consulting Engineer, 64 Broadway.

WHEELER, WILSON, & Co.—Watertown, Ct., proprietors and manufacturers of Allen B. Wilson's Patent Stitching Machine. Patented June 15, 1852, it can be seen at the Company's Office, 265 Broadway, New York. 30 20*

ATMOSPHERIC TELEGRAPH—The English patent (just issued) is now offered for sale at the Company's office, 24 Merchant's Exchange, Boston, Mass. I. S. RICHARDSON,
35tf Agent A. T. Company.

JAMES D. JOHNSON, Bridgeport, Ct., Proprietor of Wood's Patent Shingle Machine. Persons wishing to purchase rights or machines, can address as above. This is unquestionably the best machine in use for cutting shingles. 33tf

WOODWORTH'S PLANING MACHINES ON hand and manufactured to order, of superior quality at reduced prices, warranted perfect; also steam engines and other machinery. Also Rotary Stave Dressing Machines, capable of dressing staves with the natural growth of the timber, the only one ever invented capable of accomplishing that purpose. Rights for sale in various States. JOHN H. LESTER, 57 Pearl st, Brooklyn, L. I. 35 10*

NEW WORKS ON CIVIL ENGINEERING—The Field Practice of Laying out Circular Curves for Railroads: by John C. Trautwine, C. E.; second edition, in pocket-book form. A New and Rapid Method of Calculating the Cubic Contents of Excavations and embankments, by the aid of Diagrams: by John C. Trautwine, C. E., with 10 copper-plates. Price $1 each; postage on the Curves, 5 cents, and on the Excavations and Embankments, 8 cents. The postage may be remitted or not, as the Post Office does not require pre-payment. For sale by Wm. HAMILTON, Hall of the Franklin Institute, Phila. 35 3m

NEW METHOD FOR MAKING WROUGHT-Iron direct from the Ore—The proprietors of James Renton's Patent, who have purchased Alex. Dickerson's patent for the above purpose, are desirous of introducing the invention into general use, and invite parties who may wish to negotiate for rights for States and counties, or for furnaces, to make immediate application, and to examine the furnace which is in successful operation at the American Iron Company's Works, Newark, N. J. The invention is exciting considerable interest; gentlemen from all parts of the country, who are engaged in the manufacture of iron, have examined the furnace in its workings, and give it their decided commendation. A circular, giving more minute information, will be sent to those desiring it. The rights for several States and counties have already been disposed of. Applications for rights in the State of New Jersey may address the Hon. J. M. Quinby, President of the American Iron Company. Inquiries or applications for other States may be made to A. H. BROWN, Newark, N. J, Office 107 Market st. 34tf

STAVE MACHINERY—We manufacture the improved Mowry Stave Machine for slack work, cutting, dressing, and jointing, at one operation, without any handling of the stave until it is finished, after you place the bolt of wood upon the feeding carriage. The machine feeds itself, cutting, dressing, and jointing in a finished and uniform manner 80 to 100 staves a minute. Any kind of timber fit for a stave may be used, even such as could not be rived, as elm, hickory, beach, &c. The cost of running the machine need not exceed, if it equals, 50cts per M, for cutting, dressing, jointing, removing, and piling up, where a machine is kept steadily at work. For machinery and rights in the State of New York, apply to CHAS. MOWRY, Auburn, N. Y.; for machinery and rights elsewhere, to the subscribers, GWYNNES & SHEFFIELD, Urbana, Ohio. 30tf

T. J. SLOAN'S PATENT HYDROSTAT—For the Prevention of Steam Boiler Explosions. The undersigned having made extensive arrangements for the manufacture of these machines, are now prepared to receive orders for the immediate application of the same to boilers of every description. They have endeavored to place the instrument within the reach of all, by selling it at a very low price, the cost of one horse-power being only $20, five horse-power, $30, and so on, according to the capacity of the boiler. SLOAN & LEGGETT, Proprietors and Manufacturers, foot of East 25th st, New York. 30tf

MACHINERY.—S. C. HILLS, No. 12 Platt-st. N Y. dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills; Kase's, Von Schmidt's and other Pumps; Johnson's Shingle Machines; Woodworth's, Daniel's and Law's Planing machines; Dick's Presses, Punches and Shears; Morticing and Tennoning machines; Belting; machinery oil, Beal's patent Cob and Corn mills; Burr mill and Grindstones; Lead and Iron Pipe &c. Letters to be noticed must be post-paid. 27tf

A. B. ELY, Counsellor at Law, 52 Washington st., Boston, will give particular attention to Patent Cases. Refers to Munn & Co., Scientific American. 16tf

LEONARD'S MACHINERY DEPOT, 109 Pearl-st. and 60 Beaver, N. Y.—Leather Banding Manufactory, N. Y.—Machinists's Tools, a large assortment from the "Lowell Machine Shop," and other celebrated makers. Also a general supply of mechanics' and manufacturers' articles, and a superior quality of oak-tanned Leather Belting.
27tf P. A. LEONARD.

PAINTS, &c. &c.—American Atomic Drier Graining Colors, Anti-friction Paste, Gold Size, Zinc Drier, and Stove Polish.
QUARTERMAN & SON, 114 John st.,
27tf Painters and Chemists.

COTTON MACHINERY—Of the most approved plans, from the best shops in the country:—drawings, specifications, and general arrangements for the machinery, furnished at the lowest rates, by W. B. LEONARD, and E. W. SMITH, 75 Merchants' Exchange, New York. 23tf

THE TROY IRON BRIDGE CO. are prepared to erect Iron Bridges or Roofs, or any kind of bearing trusses, girders, or beams, to span one thousand feet or under, of any required strength, in any part of the country. Their bridges will be subjected to severe tests, and can be built for about the price of good wooden ones. Address BLANCHARD & FELLOWS, Troy, N. Y. 30 10*

FALES & GRAY (Successors to TRACY & FALES), RAILROAD CAR MANUFACTURERS—Grove Works, Hartford, Connecticut. Passenger, freight, and all other descriptions of railroad cars and locomotive tenders made to order promptly. 1tf

C. B. HUTCHINSON'S PATENT STAVE Cutting Machines, the best in use, and applicable alike to thick or thin staves; also his Head Cutting and Turning, and Stave Jointing Machines.
For machines or territorial rights, apply to C B. HUTCHINSON & CO., Syracuse, N. Y. 36tf

J. D. WHITE'S PATENT CAR AXLE LATHES—also Patent Engine Screw Lathes, for boring and turning tapers, cutting screws, &c. We manufacture and keep constantly on hand the above lathes; also double slide Chuck and common Hand Lathes, Iron Planers, S. Ingersol's Patent Universal Ratchet Drill, &c. Weight of Axle Lathe, 5,500 lbs; price $600; Engine Serew Lathe, 1400 to 7,000 lbs; price $225 to $675, BROWN & WHITE,
27tf Windsor Locks, Conn.

COCHRAN'S CRUSHING MACHINE—Can be seen in daily operation in Thirteenth street, between 9th and 10th avenues. Parties in want of a machine for crushing and pulverizing quickly and cheaply Quartz Rock, Iron, Lead, Copper, and Silver Ores, and other mineral substances equally hard, are invited to witness the operation of these powerful and simple, but yet effective machines. For further particulars apply to E. & J. BUSSING & CO., No. 32 Cliff st., Y. N. 35tf

THE NEW HAVEN MANUFACTURING CO. No. 2 Howard st, New Haven, Ct., are now finishing 6 large Lathes, for turning driving wheels, and all kinds of large work; these lathes weigh 9 tons, and swing 7 1-3 feet, shears about 16 feet long. Cuts and further particulars can be had by addressing as above, post-paid, or to S. C. Hills, agent N.H. M. Co., 12 Platt st, N. Y. 28tf.

LEE & LEAVITT—Manufacturers of every description of Cast Steel Saws, No. 53 Water street, between Walnut and Vine, Cincinnati, O. 27 6m*

© 1853 SCIENTIFIC AMERICIAN, INC

SCIENTIFIC MUSEUM.

Olive Oil.

Having said something last week about the probability of the revival of oil-anointing, it will be of some interest to many to know something more about olive oil, than what was contained in the article to which we refer. Olive oil has been long distinguished for its excellent qualities, and it has been used from time immemorial, both as an article of diet and of usefulness as applied to many necessary purposes, by the inhabitants of various countries. The olive tree grows wild and in luxurient grandeur in the Holy Land, and its fruit and the oil derived from it were and are used by all the dwellers in Syria and Judea. The olives of the Greecian Isles have long been famous, and a great quantity of oil is exported from that portion of the world every year. Italy is also famous for its olives and its oil; throughout all the district of La Terra d'Otranta, scarcely anything else is cultivated. The port of Gallipoli in that country from which this oil is exported in great quantities to Germany, France, and England, has given its name to the oil, which is known to many only as Gallipoli oil, and not that produced from the olive The olive tree bears when two years old, but not fully for six years afterwards, when it becomes a source of wealth to its owner. It lives to a great age, three, four, and seven hundred years, and bears abundantly during all that time. There is a celebrated tree in Pescio, in Italy, which is 700 years old, and bears two and three hundred weight of oil yearly.

When the fruit is fully ripe, it is gathered mostly by hand and crushed in a mill consisting mostly of a single stone turned in a circular bed. When the pulp is sufficiently crushed it is placed in sacks and heaped on the platform of a press. This pulp is submitted at first to a very low pressure in the press, and the oil so obtained is beautiful and sweet and is of the first quality for table use, and known as 'salad oil.' After the fine oil is extracted, there yet remains a considerable quantity mixed with vegetable albumen.—The bags of pulp are therefore lifted up and into each is poured a small quantity of boiling water. This causes the pulp to swell, the albumen coagulates, and the more fluid oil flows freely. A certain quantity, however, remains in the refuse, which is subject to further treatment, and is principally used for making soap.

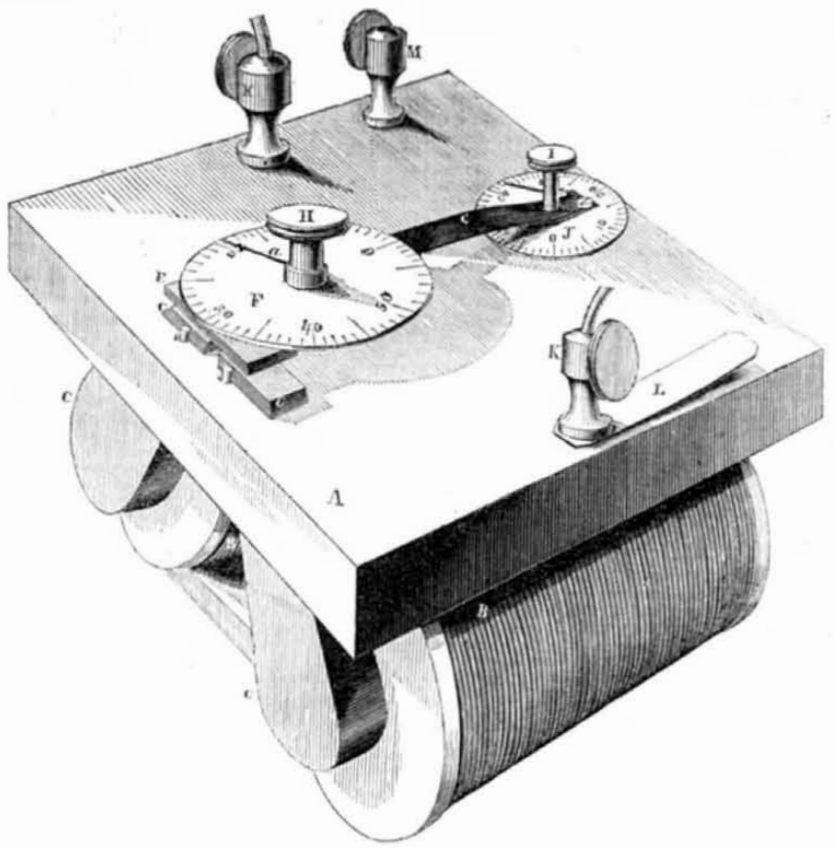
As soon as the first run of fine oil is obtained, it is conveyed in skins to reservoirs, for future good keeping. The town of Gallipoli being built on a rocky island, is famous for its caverns, where the oil is placed and where it soon clarifies and can be preserved without becoming viscid. The oil is kept for seven years in these caverns, without becoming rancid, and when it has to be shipped, it is carried down in skins, run into casks, and sometimes the oil is sent off in the skins. The fine oil called *Florence* oil, is brought from Leghorn in bottles, and is of the very first quality. Olive oil is employed for making the castile soap, and it is also much used in the arts of dyeing Turkey-red on cotton, and for oiling wool. Owing to the great quantity of oil sold in our country as *olive oil*, it is our opinion that there is much deception employed by the sellers of it—that much oil is sold for the pure olive, which is not olive oil at all. We believe that the olive could be cultivated with profit in our southern States, and we hope that some of our planters may be induced to enter upon its culture.

Vegetable Wax.

At a late regular meeting of the Farmers' Club, in this city, Judge Scott read a report on the wax and tallow plant. The myrtle tallow, or candleberry, has long been known in America, and occasionally collected for medicinal purposes, but never used as candles to take the place of spermaceti or tallow. If the subject was properly taken up, the writer had but little doubt but vegetable wax would grow into a manufacture of national importance. The bush is from three to eight feet high. It yields a supply of 25 per cent. of wax. The wax is obtained by boiling the berries in water until the wax floats, it is then skimmed off.

Swaim's Magnetomer.

The annexed engraving is a perspective view of a Magnetometer, invented by James Swaim, of Philadelphia, who has taken means to secure a patent. A is a small rosewood block; B represents an electro magnet placed in the block. The extremities of the coil surrounding this electro magnet, are attached to the binding screws, K K. The poles of the electro-magnet pass through the top of the block, A, and the armature, E, is suspended immediately across these poles from a straight spring, G. One extremity of this spring is fastened by screws to the block, A. At the point where the spring rises from the block, a hole is made in the spring, and a screw, I, is inserted through this hole into a nut fixed in the frame. To the frame of this



screw an arm or indicator is fixed so as to turn with the screw, I. Under the spring a fixed graduated disc, J, is placed. As the screw, I, is raised or lowered, the indicator points to a degree of the disc, and thus the extent of elevation or depression of the screw can be accurately observed. At H a similar screw to I is inserted through the spring into a nut in the block, A, and an indicator, *a*, is attached to the screw. A second fixed graduated disc, F, is placed on the spring, and under the indicator. The extent of elevation and depression of the screw, H, is indicated by the position of the indicator, *a*, on this fixed disc.

The operation of this apparatus is as follows:—The extremities of the wire, K K, are to be placed in the course of any galvanic circuit, or are connected with the poles of any battery, the current of which it is desired to measure. The current passing through any such circuit will induce, in the electro-magnet, a power of attraction proportionate to the force of such current. The attractive power of the magnet will be shown by the distance through which it will attract the armature, and the resistance of the spring, G, that such attraction will overcome.

The screw, H, regulates the upward limit of the armature. The screw, I, regulates the re-acting force of the spring, G. By moving these screws, H and I, until the electro-magnet is just able to cause the armature to vibrate, when the galvanic current passing around the electro-magnet is broken and closed by the key, L, the respective positions of the hands or indicators will mark the relative distance and re-acting force, which can be overco me by any particular current or battery. This apparatus is especially intended for application to telegraph lines, where it is often of great importance to determine the relative force of currents passing along main or air lines of wire, with a view of detecting breaks, defective insulation, &c. When used for that purpose, the electro-magnet, B, should be covered with a long fine wire similar to that used on receiving magnets, and the parts should be constructed of great delicacy, so as to indicate very slight variations in the strength of different currents. M is a binding screw connected with the binding screw, K. Between these two screws a bad conducting substance is interposed in order to diminish the force of powerful currents so as to enable the same spring to measure the relative strength of strong currents as well as weaker currents.

The small block or frame, A, may be diminished in size, and placed immediately across the legs, C C, of the electro-magnet, instead of longitudinally along with the coils. By this arrangement the size of the apparatus may be made smaller and more portable. This is a neat, useful, and ingenious instrument.

For further information apply to Wm. M. Swain, President of the Magnetic Telegraph Co., 101 Chesnut st., Philadelphia.

On the Temperature of Man within the Tropics.

In continuation of some researches on the temperature of man, Dr. Davy communicated to the Royal Society the results of his observations on this subject, during a period of three years and a half, chiefly at Barbadoes, where the mean annual temperature of the atmosphere, he states, is 80° Fah., and the range of temperature throughout the year from about 10° to 18° in the open air. The observations were made three times a day; the temperature of the body being noted, with that of the external air, the pulse and the number of respirations per minute; all of which are duly set forth in elaborate tables. The chief general results are the following:—1. that the average temperature of man within the tropics is a little higher—nearly 1°—than in a temperate climate; such as England. 2. That within the tropics, as in cooler regions, the temperature of the body is almost constantly fluctuating. 3. That within the tropics, as in cooler climate; the minimum degree being early in the morning, after a night's rest, and not at night. 4. That all exertion, whether of body or mind, except it be very gentle, has a heightening effect on the temperature; while passive exercise, especially carriage exercise, has a lowering tendency. 5. That heavy clothing, if tight and close, tends to raise the temperature unduly, especially under active exercise; and that close, ill-ventilated rooms, particularly when crowded, have in a marked manner the same tendency. 6. That when the body is in a healthy state, it rapidly recovers its normal condition as to temperature. 7. That when laboring under disease, however slight, the temperature is abnormally elevated, its undue degree being some criterion of the diseased action. 8. That within the tropics there is comparatively little difference of temperature between the surface of the body and the internal parts; the skin is more active in its functions, and the kidneys are less active. 9. That the effect of wine, unless used in great moderation, is commonly lowering as to temperature, while it accelerates the heart's action, followed, after a while, by an increase of temperature. 10. The tendency of sea-sickness, like that of disease, is to elevate the temperature. 11. The tendency of a sea-voyage, apart from sea-sickness, is to equalize the temperature without permanently elevating it. 12. That even at sea, with a change of atmospheric temperature, there is a tendency to change of temperature of the body, increasing towards the tropics. The most interesting facts, however, are the changes of temperature depending on changes of health or disease, and the lowering influence of wines and ordinary stimulants.

An iron railroad bridge over the Monongahela, above Fairmount, Va., is nearly completed. It is said to be the first in size in the United Strtes, and second only to that over the Menai Straits in Great Britain.

LITERARY NOTICES.

New City Directory.—Trow's New York City Directory, compiled and published by H Wilson, 51 Ann street, contains 769 pages, 8vo, with a most valuable appendix of useful information, comprising over 100 pages. It has about 140,000 names, more by 15,000 than any former issue. It is a volume which does honor to the proprietors, as well as honor to our city. It is got up with a great amount of accuracy, and is a record which will bear the criticism of our own great city and country, as well as the scrutiny of foreigners. We are happy to say that those who visit us during the coming exhibition, will have a much more perfect register than has ever before been presented to our community. We need not add that it is invaluable to us, and no man who pretends to do business in this metropolis can dispense withit. It is well bound, and will stand the wear to which it will be subjected.

Littell's Living Age—This weekly, which has been greatly enlarged, as we have noticed before has reached its 8th number, new series, and maintains more than its former excellence This No. contains 11 articles, and and all good. The first article is on the search of Sir John Franklin, and is very interesting in connection with our new American Expedition, just fitting under Dr. Kane. It is published by Littell, Son & Co., Boston.

Graham's Magazine—For June is at hand, it is well sustained in beauty, elegance, interest and classical diction. Published by Geo R. Graham, Philadelphia, Pa., at $3 per annum.

Beatrice—Or the Unknown Relatives, by Catharine Sinclair. This powerful and highly interesting story has run through several editions, and is attracting much attention in consequence of its alleged exposure of the Romish Practice. Dewitt & Davenport, publishers.

Charlotina—Or a Night with the Jesuits at Rome; by Edmund Farrence, 12 mo, pp. 431. The above is the title of an exciting new story, just issued by John S. Taylor, 17 Ann st. The author has performed his task with ingenuity, and we leave the reader to decide upon the merits of the work without attempting to influence his judgment.

MECHANICS

Manufacturers and Inventors.

A new Volume of the SCIENTIFIC AMERICAN commences about the middle of September in each year. It is a journal of Scientific, Mechanical, and other improvements; the advocate of industry in all its various branches. It is published weekly in a form suitable for binding, and constitutes, at the end of each year, a splendid volume of over 400 pages, with a copious index, and from five to six hundred original engravings, together with a great amount of practical information concerning the progress of invention and discovery throughout the world.

The Scientific American is the most widely circulated and popular journal of the kind now published. Its Editors, Contributors, and Correspondents are among the ablest practical scientific men in the world.

The Patent Claims are published weekly and are invaluable to Inventors and Patentees.

We particularly warn the public against paying money to Travelling Agents, as we are not in the habit of furnishing certificates of agency to any one.

Letters should be directed (post-paid) to
MUNN & CO.,
128 Fulton street, New York.

Terms! Terms! Terms!

One copy, for One Year	$2
" Six Months	$1
Five copies, for Six Months	$4
Ten Copies for Six Months for	$8
Ten Copies for Twelve Months,	$15
Fifteen Copies for Twelve Months,	$22
Twenty Copies for Twelve Months,	$28

Southern and Western Money taken at par for subscriptions, or Post Office Stamps taken at their full value

© 1853 SCIENTIFIC AMERICIAN, INC